

# CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society  
Of America

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FIG. 97. Madame Ganna Walska, Santa Barbara, Calif., has the largest private collection of cacti in America.



## CACTUS AND SUCCULENT JOURNAL

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## NOMINATIONS

The following list of Nominees for office are those submitted by the Nominating Committee at the annual Meeting of the Cactus and Succulent Society of America, Inc., September 13th, 1953.

*President*.....Homer Rush  
*Vice-President*.....Dr. Lyman Benson  
*Secretary*.....Ethel Rush  
*Treasurer*.....George Glade  
*Executive Board for a term of four years:* John Akers, Robert Killian, Dr. Robert T. Craig.

The following additional nomination was presented at the Annual Meeting of the Cactus and Succulent Society of America, Inc., September 13th, 1953:

*Executive Board for a term of four years:* Mace Taylor.  
 The names of all these Nominees will appear upon the Ballot which will be sent to all members within the near future.

ETHEL RUSH, Secretary

## 1943-1953

This year marks the tenth anniversary of the organization of The Detroit Cactus and Succulent Society. It was celebrated with open house on Sunday, September 13th at the Detroit Garden Center. Invitations were mailed to friends and former members of the Society to spend the afternoon in a cactus-fest.

ADA COMBEN, Secretary

## 1953 August report of the Cactus and Succulent Society of California, Inc.

The August meeting was held at the home of J. W. Dodson, 721 Edgewood Rd., Redwood City, about 35 miles from Oakland, Calif. This was a bring your own lunch, picnic affair together with a short business meeting, attended by 23 of our members.

Mr. D. R. Small of 926 Douglas Dr., San Leandro, one of our succulent enthusiasts, brought along a flat of cactus seedlings. He gave us a short talk on his success, in growing from seed, these plants most of which were Mammillarias. He said sand (not ocean) leaf mold (Manzanita) and water was his method, and these plants all showed his care all of which were beautiful and about 2" to 3" tall.

For a long time it has been the custom of our members to bring to the meetings at least one plant for study and discussion. As many as a dozen or more

species of cacti and succulents have been assembled on our tables for observation.

Mr. and Mrs. Dodson's home has an ideal setting for a meeting place. His collection is perhaps the largest private collection of Haworthias in America. Hundreds of mature plants can be seen. On one bench alone are dozens upon dozens of true species—all imported from South Africa. Mr. Dodson says he has very few hybrids. There was not one plant in bloom, says he destroys the flowers thereby preventing cross pollination.

It is needless to say we all enjoyed the privilege of seeing this large and beautiful collection of Haworthias and kindred plants and also being fortunate in being privileged to purchase some cuttings of his rare Haworthias.

ERNEST L. MUELLER

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUESTED BY THE ACT OF CONGRESS OF AUGUST 24, 1912. Of Cactus and Succulent Journal, published bi-monthly at Pasadena, for October, 1950. State of California, County of Los Angeles.

Before me, a notary in and for the State and county aforesaid, personally appeared Scott E. Haselton, who, having been duly sworn according to law, deposes and says that he is the Editor-Publisher of the CACTUS AND SUCCULENT JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Scott E. Haselton, Box 101, Pasadena.

2. That the owner is: CACTUS AND SUCCULENT SOCIETY OF AMERICA, INC.

3. That the known bondholders, mortgages, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. Cactus and Succulent Society is a nonprofit organization and issues no stock.

SCOTT E. HASELTON.

Sworn to and subscribed before me this 14th day of September, 1953—Bernice C. Fletcher, Notary.



FIG. 98. William Hertrich, Curator Emeritus of Huntington Botanical Gardens, beside a 45 year old *Echinocactus grusonii* which he raised from seed.

## FIFTH BI-ENNIAL CONVENTION

By MRS. CACTUS PETE, Secretary

Friday, July 10—the Fifth Bi-ennial Convention of the Cactus and Succulent Society of America, Inc., held its first meeting in the private dining room of Carpenter's Santa Anita Cafe. At this time there were 120 registered and there were 85 in attendance. Final registration was 130 plus nine under the age of sixteen . . . total 139.

The meeting was called to order at 10:10 by Convention Chairman, Howard E. Gates. Six rare plants were given as door prizes. Many fine cacti and succulents were generously donated for use as door prizes throughout the Convention by the California Commercial Growers, Howard E. Gates, Gilbert Tegelberg, Sherman E. Beahm, Harry Johnson, Desert Slim Moorten and Cactus Pete, Mastrangle's Rocking Horse Cactus Gardens donated Arizona Rainbow seeds for all, plus many fine plants. Non-commercial members also donated prizes. Robert Taylor of El Cajon gave many fine grafted cacti and Dr. Craig not only donated a copy of his *Mammillaria Handbook* but gave a box collection of cactus and succulents to each out of state mem-

ber. Mr. and Mrs. Laval Goulet brought maple syrup and sugar from their home in Quebec, up near the Arctic Circle. These drawings created a great deal of excitement throughout the Convention . . . due to the rarity of plants and prizes. Since all drawings were held at the beginning of each meeting, they helped insure prompt attendance.

Chairman Howard Gates introduced Mr. H. T. Michler, President of the Arcadia Chamber of Commerce, who welcomed the Convention to Arcadia "Queen City of San Gabriel Valley"—"finest place in Southern California." His was a typical California welcome, offering the hospitality of Arcadia and extending an invitation to visit their botanical gardens—the Arboretum at the old "Lucky Baldwin" estate, which had not yet been opened to the public. Since Arcadia was celebrating its 50th Anniversary on August 10th, he invited Convention Members to attend and gave each member a golden coin, commemorative souvenir.

Mr. Gates introduced our President, Harry Johnson, Jr., who thanked Mr. Michler and Mr.

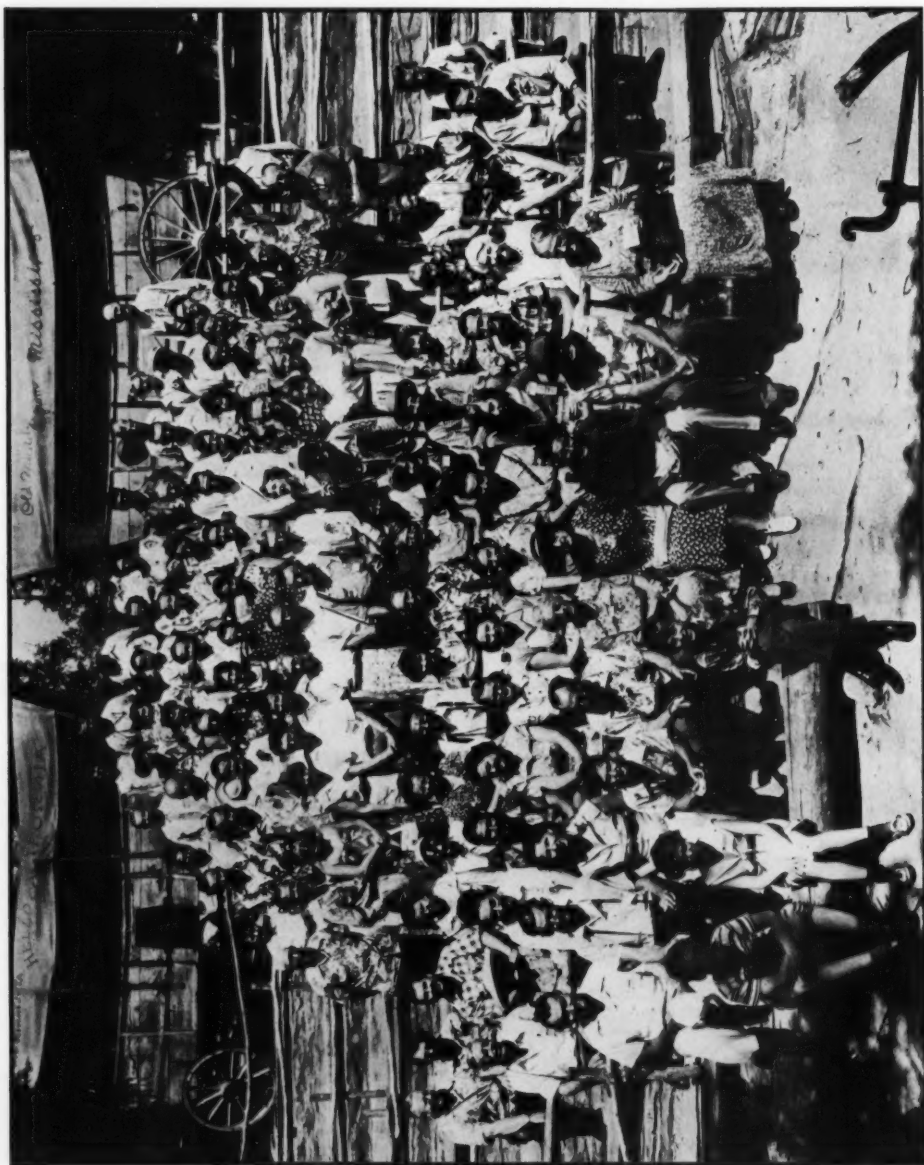


FIG. 99. A group of the Conventioners at Knott's Berry Farm.

Baity for their warm welcome. Mr. Gates introduced Queen Patricia Moorten who wore a flowery costume on hand embroidered lace from Old Mexico. She explained what she felt to be the importance of cactus and gave her thanks to all behind the scenes who helped in lining up the Convention program. She invited all to attend the Fun Session, its special Coronation,

and the Loud Shirt and Hat Contests which would follow. After a brief outline of coming events, Queen Pat thanked Mr. Gates for bringing back the lace to finish her costume on his last Mexican trip. Queen Pat presented Pres. Harry Johnson, Jr., with a water bag, hand made from cow hides and having a cactus wood stopper, which he had admired on a recent trip to

Baja California. She invited us all to Palm Springs and outlined our desert tours. She closed with the following Imperial Proclamation, "May the 5th Bi-ennial Convention of this Society be dedicated to its worthy cause, above all be colorful, educational, thrillingly entertaining and beneficial to everyone, thereby fulfilling a memorable accomplishment in our sincere devotion to these supreme creations in the world of vegetation."

Chairman Gates introduced Vice-Chairman Ladislaus Cutak who welcomed all to the Fun Session with the assurance that if anything went wrong, they would have a couple of stretchers, some Band-aids and tweezers around some place. He also invited all to become official members of the Royal Order of Cactus Nuts.

Telegrams were read from the Detroit C. & S. Society and the Colorado C. & S. Society. Chairman Gates introduced: Secretary, Mrs. Cactus Pete; Treasurer, Homer Rush, and the Committee Representatives of the Host Societies: Mr. Armstrong, Los Angeles C. & S. Society; Mr. Tegelberg, California Cactus Growers Association; Mace Taylor, Long Beach Cactus Society; and Mr. Beahm, Epiphyllum Society of America.

Mr. Gates then introduced each member individually. It was found that Mr. and Mrs. Laval Goulet and family were from the greatest distance, from Amos, N. Quebec, Canada, near the Arctic Circle, and that Mr. and Mrs. Carl Henschied, from Rupert, Idaho, with their twelve children was the largest single group.

Lunch was followed by bus and car tours to view the beautiful succulent gardens of the Angeles Crest Nursery in La Canada, and the cactus and Epiphyllum Gardens of Gertrude and Ernie Beahm in Pasadena where the display of many Epiphyllum hybrid flowers was a rare treat at this season of the year. It was noted that, although both of these nurseries were most generous with plenty of refreshing cold drinks, everyone still had a good appetite when we met for dinner at Carpenter's at 6:30. Dinner music, in the Spanish manner by roving troubadours, was furnished by participating Host Societies.

Evening meeting was called to order at 8 o'clock by Chairman Howard Gates. After the drawing for door prizes, Mr. Gates introduced our Chairman of the evening, Dr. Elzada U. Clover of the University of Michigan, a most gracious and charming lady whom none of us could ever forget. Dr. Clover introduced our first speaker of the evening, Sister Marie Fidelis, I.H.M. head of Biology Department at St. Mary's College, Monroe, Michigan, who had recently completed her degree in Botany with the study of cacti. Sister Marie Fidelis gave her sincere thanks to those members of the Cactus and Succulent Society who had helped her with specimens for her study. She told of her study of the chromosomes, of 142 members of the Cactaceae family—mostly *Mammillaria* chromosomes, enlarged 2,000 times so that they might be counted, showed a basic chromosome count of 22, but there were deviations in multiples of



FIG. 100. Group of *Mammillarias* clustered between desert rocks and a collection of *Cereus* in the background. Huntington Botanical Gardens.



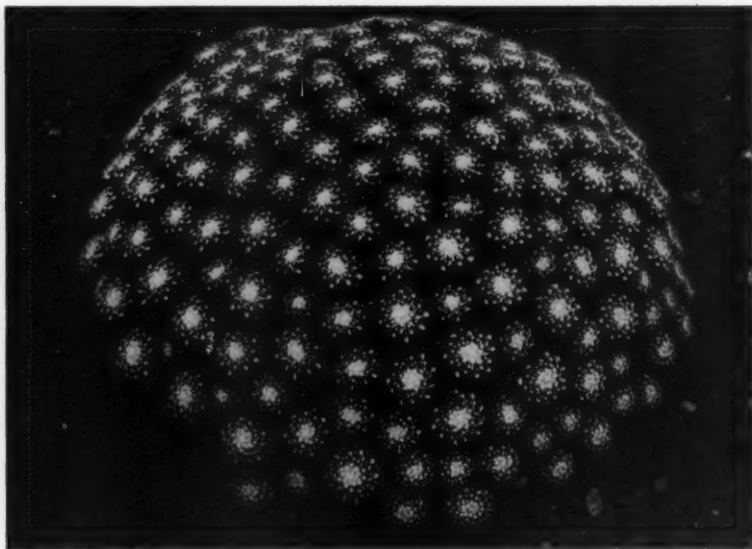


FIG. 101. *Mammillaria compressa* in Huntington Botanical Gardens. Commonly known as the pincushion cactus. This specimen plant is three feet across and was collected in Mexico in 1911 as a small plant with three heads.

that number, i.e., 44, 66, etc. This she illustrated with charts which she had made and she concluded that her work only shows her how much more there is to be done with this great Cactaceae family.

Dr. Clover introduced our second speaker of the evening, Dr. Lyman Benson, head of the Botanical Department at Pomona College, Claremont, California, who clearly illustrated "Color in the Southwestern Desert" with most beautiful slides, each a real work of art. He explained that he had an incurable disease, having been bitten by the cactus bug at any early age, and that once he drank water of the Hassayampa but did not remember if he had looked up the stream, so that he might never leave the desert, or down the stream, so that he might speak no truth, but we all knew that here indeed was a true admirer of the great Southwest desert.

July 11th, Saturday. A caravan of over 20 cars started from Carpenter's at 9:00 a.m., enroute to Huntington Botanical Gardens in San Marino, which had been opened at this early hour especially for the C. & S. Convention. This garden was really one of the Convention highlights, since most of the members had not seen such a variety of really old plants . . . most members could hardly believe their eyes and all hated to leave this lovely garden.

After lunch at Carpenter's, all boarded the busses, or private cars, for Knott's Berry Farm in Buena Park. Upon arrival at the Covered

Wagon Camp, pictures were taken of the entire group by the Ghost Town "Pitchur Gallery." (This session is reported in "Spine Chats.")

Sunday, July 12th, 9:00 a.m.: We all left by bus and car for the Johnson's Cactus Gardens in Paramount, California. This was the first visit to a large commercial cactus nursery by many of the eastern visitors and they were amazed at the number and variety of plants that are required of a retail cactus dealer. The time was too short to see half of the interesting succulents many of which were in flower.

On Sundays afternoon the session of the 20 Convention Delegates was held and in spite of much discussion and several false starts, the delegates came up with some constructive suggestions which have been passed along to the Executive Board of the Society. It was not definitely settled where and when the next Convention would be held but most of the delegates preferred Texas or Mexico or a combination of the two.

Monday, July 13th; After 7 o'clock breakfast at Carpenter's, the Bus Tour started at eight . . . a tour of Hollywood, where the bus drivers pointed out the homes of famous movie personalities, famous restaurants and other Hollywood highlights . . . by way of Santa Monica, Malibu and Ventura. Luncheon was served at Restaurante del Paseo in Santa Barbara and, after a hurried glimpse of the gift shops surrounding it, we went by bus to Lotusland Cactus Gardens,

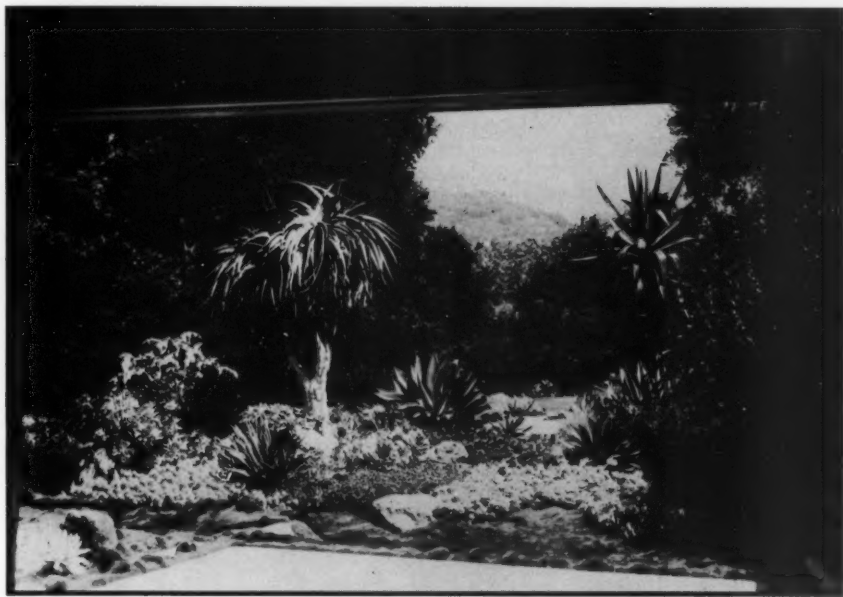


FIG. 102. Window picture from livingroom in the Warren Tremain home in Santa Barbara. Cutak photo.

the home of the famous singer, Ganna Walska, who most graciously welcomed us to the hospitality of her gardens.

Tuesday, July 14th; After 7 o'clock breakfast at Carpenter's, we left by bus at 8:30, via Monrovia, Azusa, Claremont and Ontario to the Gates Cactus Gardens in Corona. Every day, we all depended on Mr. Gates, but this was truly "his day," and none of us will ever forget how he guided us on our journey, pointing out things of interest and telling us about the things we saw . . . a wonderful host indeed and all enjoyed his wonderful commercial acres and greenhouses, where we were refreshed with real lemonade, compliments of Sunkist. Boxes of ripe peaches were presented by our hosts, Mr. and Mrs. Gates. The highlights of this trip was the humming bird nests of mud and cobwebs, one of which held two tiny fledglings, almost ready for flight . . . this really aroused the "shutter bugs." All too quickly we heard the call of "Shore Boat" and knew it was time to leave and so we hopped aboard our waiting bus. We stopped for "luncheon" at the Norco Community Center, where the ladies of the town served us a feast, the best dinner of the entire convention. Everything was perfection from the wonderful roast, the fresh picked vegetables, homemade jams and pickles to the real honest to goodness home-made apple pies and home-made ice cream. Who could blame Sister Marie

Fidelis if she wanted to eat a dozen ears of that luscious, tender sweet-corn which had been picked special for us that morning? All came away with gift cans of concentrated lemon juice from Sunkist.

We arrived late at the Biltmore Hotel in Palm Springs, the desert oasis at sea level, where Ex-Queen Pat greeted us and, after a quick scrubbing and a brief rest, we met for dinner in the cool Hotel dining room. After dinner, we grouped around the huge swimming pool and here Howard Gates showed his beautiful pictures of Mexico. Surely, all of us wished then that our next convention would be held down in old Mexico, so that we too might see the sights which he and Gil Tegelberg had seen. This was a wonderful evening, spent relaxed and cool, watching the night hawks swoop down effortless overhead and listening to a few snores from one or two over-relaxed conventioners.

Wednesday, July 15th; After their luxurious night's rest, all looked refreshed and ready for the day ahead. The Convention group had slowly dwindled until now we had but one bus full but what a jolly bus full. The bus rides were truly one of the real convention highlights, not only because of what we saw, but of the wonderful friendships formed there and the good natured kidding by all aboard. The ladies were wonderful . . . Sister Marie Fidelis, who always joined in our fun, Dr. Elzada Clover who

was so very interested in everything, Mrs. Hunter who could not always walk with us but who stuck by to the last and never complained, Mrs. Radden who was not above dousing a cup of water on the singers who became too loud. Of course the quick quips of John Rodgers kept us all in "stitches." None of the old-timers dared breathe that it was 110° in Palm Springs that day, but everyone stood the heat in good shape and there were no complaints . . . all were too busy looking at wild cactus, hunting rock specimens or taking pictures. Under the leadership of Patricia Moorten and the Indian Agent, we visited Palm and Andreas Canyons in Indian territory, where springs had turned the desert into natural palm gardens and none could resist drinking from the small stream roaring down the mountainside.

We stopped at the Moorten's Cactus Museum in Palm Springs, where we saw many strange creatures which were actually wierd desert roots and twisted branches which they had collected on their desert trips. All admired their cactus and rock collections and, after partaking again of the juice of the barrel cactus, we were on our way home. Aboard the bus, we settled down, comfortable and relaxed, and as we journeyed we again listened to Mr. Gates enumerating the highlights of early California history. Thus we

went, out across the desert, through the Devil's Garden, with Mr. Gates pointing out the places and plants of particular interest to us. So much to be seen in such a short time that we were falling behind schedule and we arrived at Fireside Inn in Beaumont very late for lunch.

All the way back to Arcadia, Mr. Gates, untiringly pointed out the highlights, while the rest of us rested. Truly Mr. Gates was the real host of the convention and none of us could ever forget his efforts in our behalf and just before reaching Arcadia, he was given a rousing cheer as just a small token of the love and appreciation which we held for him deep in our hearts. We arrived at Carpenter's to find Ernie Beahm waiting with a huge box of peaches for us all. It was a tired but happy group which disbanded that afternoon . . . happy for the experiences we had shared, but sad too, that so soon we were saying "goodbye" to these new found friends with whom we had shared so much fun and companionship. With a final call of "See you in Mexico in '55" each of us returned again to the reality of our own work-a-day world, with a wish that soon we would all meet again.

EDITOR'S NOTE: Without a doubt this is the finest and most complete report of any of the conventions. Mrs. Pete gave all of her time to this report so that distant members could at least share with those who were able to attend.



FIG. 103. Where palms meet cacti in Palm Springs Canyon.  
From "Palms and Cycads"—Hertrich.





FIG. 104. Cactus Garden of Ganna Walska. Cutak photo.

## LOTUSLAND—A CACTOPHILE'S EDEN

By LADISLAUS CUTAK, *Horticulturist, Missouri Botanical Garden*

Tourists who prefer to drive their car over modern highways in our great Southwest often pass miles of cacti,—spectacular saguaros and squat biznagas, clustering hedgehogs, bushy chollas and clumping prickly pears. In Arizona the giant saguaro rears its thick corrugated stem skyward, often with arms erect or sometimes outstretched in ludicrous fashion. But there are hundreds of dwarf cacti that escape detection unless you are a searching cactus fan.

Behind the stone walls of many a Southwestern home are gardens in which these bizarre plants are grown. If, for instance, you happen to be driving on Sycamore Canyon road in Santa Barbara (California), you'd never suspect that behind the forbidding walls of one of the estates is tucked a veritable cactus Eden. It belongs to Mme. Ganna Walska, the Polish diva who made many a headline in the news of yester-year. The members of the Cactus and Succulent Society of America who attended the convention in July were privileged to pass through the grilled iron gates of "Lotusland" and view the massive plantings. The visit and hospitality of Mme. Walska will always remain a highlight of the fifth biennial meeting.

The writer was a guest of Mme. Ganna Walska for two days during which time he got to know this gracious lady better than the rest of the gang and therefore was asked to write up her fabulous collection.

Lotusland derives its name from the myriads of Egyptian lotus that grow in the lake and flap their huge platters of leaves high above the water. The aquatic bears immense pink flowers which remind one of full-blown giant peonies. Famed in tradition, the sacred Lotus is immortalized in ancient Egyptian and Hindu art. Like the lotus-eaters in the *Odyssey* who subsisted on the lotus and lived in the dreamy indolence it induced, so did the writer live in the enchantment of Ganna Walska's cactus garden. It is, without a doubt, the finest private cactus garden in the United States.

The cacti are grouped in several beds around the back end of the Old California style stucco house. There must be thousands of them. Originally the house was covered with green ivy but this did not please Mme. Walska, so she had it removed and cacti were substituted. The choice was an excellent one for the tall *Cereus* give it a distinctive look. A few arborescent

Euphorbias are also used. *Lemaireocereus stelatus* was producing a number of pink red flowers at the top of a six-foot spiny stem. This is a rather pretty species with large areoles bearing dark brown spines, the eight to twelve radials disposed in star-like fashion. A taller bushier species was *Cereus Forbesii* from Argentina. The bluish green juvenile growth soon passes to dull green and the wing-like ribs support large round areoles filled with yellowish brown spines. Near it grows a monstrose *Cereus* with very contorted stems.

A recent addition is a tall *Cephalocereus senilis* that is as tall as the house and with few stems issuing from its base. The Madame is very proud of this Old Man, for there are not too many venerable specimens in cultivation. Many other tree-like cacti are planted against the house, presenting a great diversity in form and in habit. Most of them are of the branching type, either from the base or above it, but a few are single jointed, like the *Pilocereus polylophus*, of which there are two almost identical specimens. The latter is an imposing species with its thick many-fluted deep green stem covered with yellowish hairlike spines. As spectacular as the tall *Cerei* are, the eye most likely will be drawn to the golden-spined *Echinocereus Grusonii*, planted in mass under them. This is the very well known "golden ball cactus," the most beautiful in the whole genus. Spiny balls of various sizes are included and there must be at least three hundred of them. All of them were producing yellow flowers in a crown at the top.

At the rear of the house is a spacious courtyard that can accommodate a number of cars. Beyond it is a bed featuring a very large branching dragon-blood tree and a number of smaller ones underneath it. This plant receives its mystifying name from the fact that at certain times a blood-colored resinous substance exudes from cracks in the trunk. The resin has been supposed to have been used by the aborigines of the Canary Islands in embalming their dead.

Nearby is a planting of *Aloe Bainesii*, a South African lily tree, which in its native Africa can become nearly fifty feet tall. There are many other spectacular liliaceous plants grown but the greatest mass display is under trees and palms where thousands of arborescent Aloes must form a beautiful sight when they are all in bloom. In the same general area is also a field of blue century plants which extends all the way to the lily pool. You see, everything in Mme. Walska's garden is done on a big scale. She used to be on the concert stage, so everything in the garden is displayed in grandiose theatrical style. *Kalanchoe beharensis*, native of Madagascar where so many other intriguing succulents grow, is probably the tallest member of the Crassulaceae

and is represented in the garden by a number of grotesque specimens. Right across from it is a bed featuring both tree-like and bush-like forms of *Euphorbia*. They greatly resemble the cacti but they differ in floral structure, and besides, all have milky latex which irritates the skin upon contact.

The cactus nut goes wild in the grafted cactus section where many beautiful crests are on exhibition. All collectors treasure crested varieties and Mme. Walska has many beautiful specimens. The crests assume fantastic shapes for they grow in a line rather than from a point. Some of the beautiful white-haired crests of *Cleistocactus* were producing long tubular red blossoms that looked like firecrackers. Several *Espositoa lanata* immediately attract attention for this is a very unique and handsome Peruvian endemic with strong spines and long white hair. Interesting *Oreocereus* with coarse white hair and stout curving reddish yellow spines is included in the collection but the more slender *Morawetzia* was blooming and cameras were clicking all around it. The flowers of *Morawetzia Doelziana* are comparatively small, being only two to three inches long, but are very colorful, originating from a true cephalium of bristles, spines and long coarse white hairs. In fact, wherever flowers were showing that plant was the object of general attention and had its picture taken. Even at this late season a number of saguaros were producing handsome white flowers.

The large cacti always are planted toward the back of the beds and in front by the road are the smaller types like *Echinopsis*, *Echinocereus*, *Mammillaria*, *Astrophytum*, etc. All the forms of *Astrophytum* were represented, the most typical being *A. myriostigma*, better known as the bishop's cap. The specific name is derived from the Greek signifying myriads of dots or marks on the surface and the plant looks more like a piece of chiselled stone than a living vegetable. The fairly large funnel-shaped flowers of yellow were appearing in clusters at or near the top of each plant body. A number of *Echinopsis* were sporting large trumpet-like blossoms from the sides of globose stems but the prettiest were the pink-flowered forms.

Although the *Idria columnaris* is not a cactus it is one of the strangest of all desert plants. It belongs to the same family as the ocotillo. Looks more like a huge carrot with its large end in the ground. A number of tall specimens are planted in a group and resemble living telegraph poles with the wiry branches emerging in horizontal fashion from near the top of the tapering stems.

The host of fascinating cacti, agaves, idrias and other succulents extend in an endless variety toward the section known as the white and blue

garden, about halfway from the house to the entrance gates. In this garden Mme. Walska permits only pallid-hued plants from ground cover to large trees and palms. African silver trees, *Festuca* grass, blue palms, Crassulaceous herbs and cacti all possess the white, blue or grey cast that is demanded. There is an interesting bed of medium-sized Old Men cacti from Mexico and plantings of dwarfish white-spined *Mammillarias*.

Beyond the white garden, paths lead to the fern dell where various kinds of tree ferns and cycads are grown; to the outdoor theater, a hedge-enclosed grass-terraced garden with statues of elves and imps about; to the Epiphyllum nook, where the orchid cacti grow beside moss-covered boulders. Here a few bromeliads are also grown, among them *Aechmea fasciata* which was unfurling its lovely pink heads of blue flowers during our visit. Several hanging baskets of the burro tail, *Sedum Morganianum*, were suspended from the branches of a large spreading tree.

Succulents of all kinds are thriving in the

open ground or under lacy foliage of trees. There are handsome *Pachyphytums* with thick and beautifully colored leaves, white powdered *Dudleyas*, cabbage-like *Echeverias*, plush-like *Kalanchoes* and huge rosette-forming *Aeoniums*. In fact, almost any succulent you can think of is represented.

It must be said that Ganna Walska possesses a truly fabulous garden. One could go on raving continuously about the plants but it would require pages and pages to do her collection justice. This is but a simple attempt to describe a few of the plantings that would interest the cactus enthusiast. However, *Lotusland* contains even more than what this writer has meagerly described; for there are gardens devoted to roses, dahlias, peonies, day-lilies, agapanthus, begonias and other garden favorites. There are plantings of giant bamboos, evergreens, bananas and other exotics. Around the blue-tiled swimming pool are placed large strawberry jars planted with *Echeverias* and giant seashells ornamented with *Kleinia* and *Cotyledon* of the whitest hue.



FIG. 105. Specimens of grafted crests at Lotusland. Cutak photo.



FIG. 106. *Adromischus Rodinii* P. C. Hutchison. U. C. B. G. No. 50.1181, ca. nat. size. Photo by author.

## STUDIES IN THE CRASSULACEAE

### 3. *Adromischus Rodinii*—a New Species from Namaqualand

By P. C. HUTCHISON\*

*Adromischus Rodinii* P. C. Hutchison, sp. nov. Planta succulenta perennis cauli brevi laevi contorto foliis oppositis oblanceolato-spatulatis apice aliquantulo acutis pagina superiora leviter convexis subtus rotundatis usque ad 6 cm. longis 2.2 cm. latis viridibus margine 2 cm. ad apicem versus concolore vel porphyreo spiculis cerosis inconspicue maculatis aliquantulo curvato-adscendentibus diametro basali ovali 4 mm. eo ad apicem versus ovali vel ovato insuper leviter plano diam. ad 22 mm. Inflorescentia simplex pedunculo usque ad 30 cm. longo rachi ad 13 cm. longo floribus alternantibus singularibus erectis. Perianthi tubus glauco-viridis 12 mm. longus diam. 4 mm. medio leviter constrictus diametro valde pentagonalis limbo usque ad tubum dissecto lobis oblongo-ovatis aliquanto acutis 1.5 mm. latis 3.0 mm. longis luteo- vel viridi-albis marginibus atrorubiginosis leviter recurvatis.

Stem at first erect, later prostrate, rooting at nodes, thick, brownish, smooth, somewhat contorted. Leaves approximately opposite, some-

what curved-ascending, distinctly petioled, oblanceolate-spatulate with a rounded or somewhat acute apex, more or less convex on the upper face, strongly convex below, to 6 cm. long, 2.2 cm. wide, bright green or almost yellowish green, inconspicuously pitted with lighter flecks, apical 2 cm. concolorously or purplish brown keeled on the margins, cross-section of petiole oval and 4 mm. diam., above petiole oval to round and often less convex on upper side and up to 22 mm. diam. Inflorescence terminal, simple, the peduncle 20 to 30 cm. long, terete, 3 to 4 mm. diam., green shading to purplish brown, slightly glaucous, lower 8 to 12 cm. with 8 or more thick, blunt, deltoid, purplish, sterile bracts 1.5 mm. broad and ca. 1.0 mm. long, rachis 9 to 13 cm. long, flowers 6 to 12, alternate, erect, single. Pedicels terete, glaucous, 4 to 6 mm. long, 2 mm. diam. at base, 3 mm. diam. at middle, slightly constricted apically, subtended by a small deltoid-acuminate bract and with two smaller bracts on the lower part. Calyx lobes deltoid, acute, sometimes purplish tipped, ca. 1 mm. wide and 1.5 mm. long. Perianth tube glaucous green, 12 mm. long, 4 mm. diam., slightly constricted at the middle,

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Contribution No. 131.

cross-section strongly pentagonal with rounded corners, sinuses extending as conspicuous indentations of tube to base. Limb lobes free, slightly recurved, dextrorsely twisted apically, oblong-ovate, somewhat acute, 1.5 mm. broad, 3.0 mm. long, pale yellowish or pale greenish white with dark purplish maroon margins. Filaments biserial at about middle of tube, 3 to 4 mm. long, pale green, anthers oblong, yellow, included. Carpels ca. 9 mm. long, green, style subulate, greenish white, stigmas unenlarged, included. Nectary scales 1 mm. long, 2 mm. broad, apex shallowly concave, sides convex, corners rounded, pale yellow.

South Africa: Namaqualand, near Hellsberg in the Richtersveldt, Oct. 10, 1947, R. Rodin 1617 (Univ. Calif. Bot. Gdn. No. 50.1181) (UC-Holotype).

On younger leaves the upper face is generally less convex and sometimes almost flat; the leaf apex is usually more acute and the marginal keel more distinct. Under glass the leaves tend toward laxness, and older leaves of a flowering

stem, in particular, may assume a horizontal position or may droop, as may the inflorescence (cf. fig. 108).

Stellenbosch No. 6065 (U. C. Bot. Gdn. No. 51.808), collected at Helskloof by Mr. H. Herre, is undoubtedly conspecific with this new species although it differs in a number of characters. The leaves are darker green with more conspicuous grey flecks giving the plant a grey aspect. The marginal keel is less distinct and the upper leaf-surface more convex. The leaf base is thicker (5 to 6 mm. diam.) resulting in a less distinct petiole. The upper leaf-surface is apparently never flattish, even on younger leaves. One leaf developed a somewhat retuse apex.

*Adromischus Rodinii* is most closely allied to *A. marianae* v. *immaculatus* Uitewaal and *A. kubusensis* Uitewaal, sharing with these species, in particular, the short almost obsolescent stem, odd, somewhat clavate leaves and very thick-tissued, short-lobed flower with conspicuous indentations from the lobe sinuses to the base of the tube. Floral and leaf characters also rather

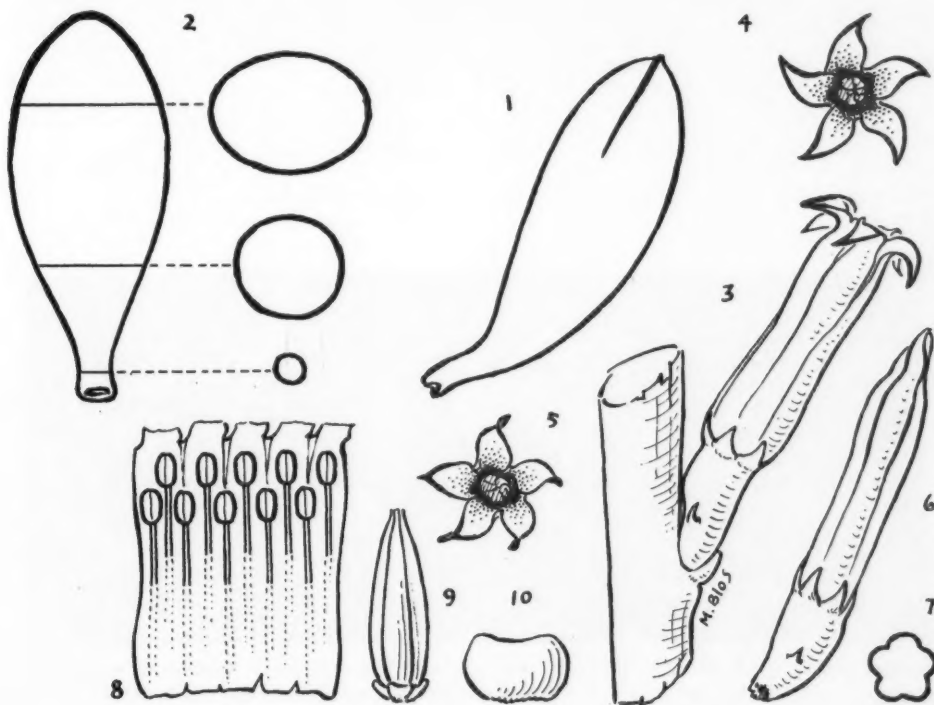


FIG. 107

*Adromischus Rodinii* P. C. Hutchison. 1. Leaf, side view. 2. Leaf, top view and transverse sections. 3. Flower, side view. 4. Spread limb, top view. 5. Reflexed limb, top view. 6. Bud, side view. 7. Outline cross-section mid-tube. 8. Stamen insertion. 9. Carpels. 10. Nectary scale. 1, 2, nat. size; 3-9, 3 x; 10, 9 x.



closely relate *A. Rodinii* to *A. antidorcatius* Poellnitz and *A. Herrei* (Barker) Poellnitz.

I wish to acknowledge the preparation of the Latin diagnosis by Dr. Rimo Bacigalupi.

A. J. A. Uitewaal of Amsterdam had long cultivated Stellenbosch No. 6065 and in correspondence indicated that he considered it a new species, but he kindly deferred publication when he learned of my work on this genus and in particular on this species.

Two other *Adromischus* collections made by Rodin in Namaqualand have likewise proven to be new and will shortly be described in this journal. The cytology of these and other species of the genus will be reported in some detail at a later date.

This new species is dedicated to Dr. Robert J. Rodin, who as a graduate student acted as Botanist for the University of California African Expedition, 1947-1948. During his travels in South Africa he collected and sent back to this institution some hundreds of succulent plants,\* either as seed or as living specimens, among over 4000 numbers of African plants. His doctoral thesis (1) and two publications (2, 3) are in large part based on his work in Africa. While attempting the determination of the Rodin collections of African succulents I became interested in the systematics of *Adromischus* and this in turn has led to a successful attempt to bring together a nearly complete collection of the spe-

\*An annotated list of the succulents he collected is in preparation.

cies, which permits the current intensive investigation of this genus.

*Adromischus Rodinii* has proven to be rather difficult in cultivation as are those species most closely related to it. It requires very well-drained soil and more cautious watering than most *Adromischus*. The leaves will not endure as intense insolation as other species which, together with its lack of leaf pigmentation, suggests that in its habitat it may grow in crevices or under shrubs where it is partially sheltered from the strong light characteristic of the Richtersveldt. The older leaves seem to be short-lived. They rarely survive more than a year on our plants. Plants grown outside in full summer sun have approximately the same morphology but the general habit and inflorescence is always much more compact. These plants likewise have a tendency to lose their lower leaves. Propagation is best accomplished by leaf cutting with the next to the oldest leaves giving most satisfactory results. The species will undoubtedly be of interest only to collectors specializing in rare and unusual plants, since it lacks coloring, is slow-growing, and is scarcely distinctive enough in other respects for use as a bedding plant.

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2. Rodin, R. J. "Petrified Forest in South-West Africa." *Jour. Paleo.* 25: 18-20, 1951.
3. Rodin, R. J. "Distribution of *Welwitschia mirabilis*." *Amer. Jour. Bot.* 40(4): 280-285, 1953.



FIG. 108. *Adromischus Rodinii* P. C. Hutchison, flowers, showing degree to which lobes spread during foggy weather. During the first two years of observation the flowers never fully opened due to foggy weather. Curvature of pedicels and angle of flower in this photo is due to lax inflorescence which developed during a foggy period under greenhouse conditions. Photo by M. Kimmach, ca. nat. size. FIG. 109 (right). *Adromischus Rodinii* P. C. Hutchison. U. C. B. G. No. 50.1181. Photo by M. Kimmach, ca. 0.8 x.

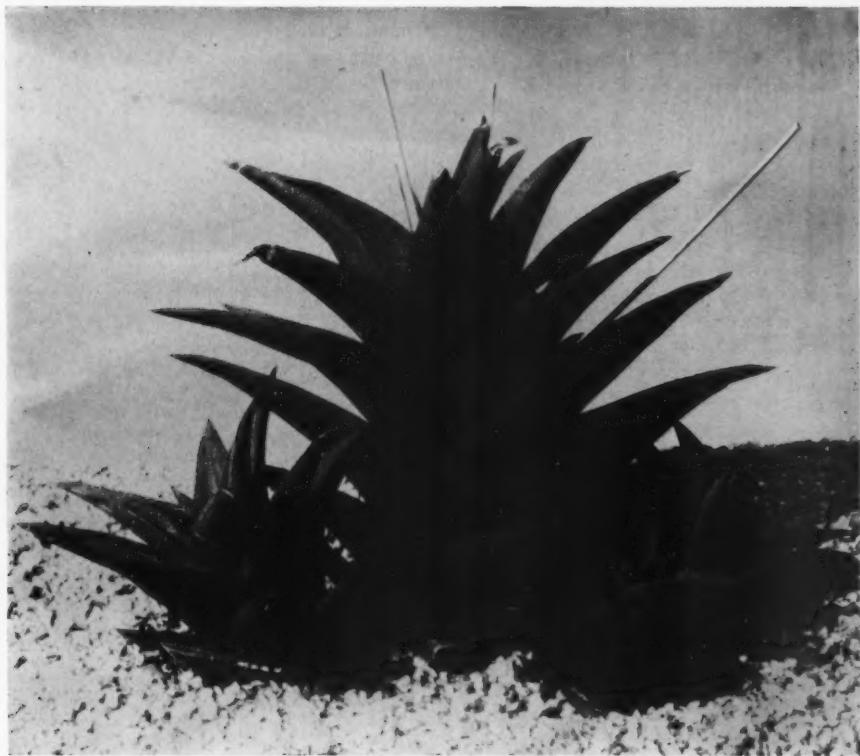


FIG. 109. *Haworthia lisbonensis* Resende nat. size.

## NOTES ON HAWORTHIAS

By J. R. BROWN

*Haworthia lisbonensis* Resende in Port. Acta Biol. (B) II (1946) 175, figs. 1, 2, 3, 4.

Plant with leafy stems to 12 cm. long and 9 cm. in diam., proliferous from the base.

Leaves ovate-lanceolate, acuminate, spreading and somewhat recurving in the upper part, dark green or blackish-green, 3-4.5 cm. long, 10-20 mm. broad towards the base, and terminating in a small, greenish-pellucid point which soon withers; face of leaves concave, the oldest becoming more or less flat and with a raised median line or often with 2 lines which converge and unite in the upper part; back rounded and obliquely keeled or usually with 2 keels; both leaf surfaces and margins covered with minute concolorous tubercles.

Locality: Unknown.

The illustration of this *Haworthia* shows a plant which was kindly sent to me by Dr. Flavio

Resende some years ago. In his description of this plant he mentions that the leafy stems do not exceed a length of 12 cm. and a diam. of 7 cm. under the conditions existing in the Botanical Gardens at Lisbon both in and outside the greenhouse. Growing outdoors in So. California it is a somewhat stouter plant, the leafy stems attaining a diameter of 9-10 cm., and the leaves may be 25 mm. broad towards the base and attain a length of 5 cm.

This *Haworthia* quite evidently belongs in the sect. *Rigidae* and not in the sect. *Coarctatae* where it was placed by Resende.

It seems to be a *Haworthia* which has been known in *Haworthia* collections for a very long time, as a similar plant was received from England many years ago without a name, but it would seem to be very near to *Haw. rigida* (DC.) Haw.

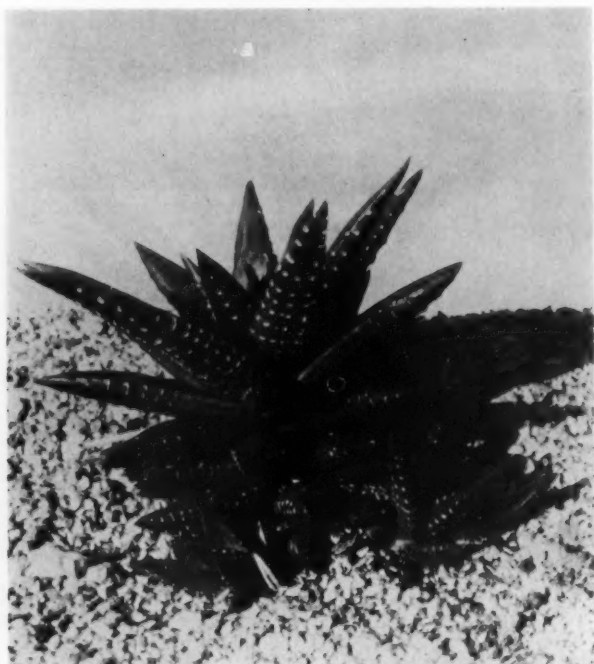


FIG. 110. *Haworthia fasciata* forma *vanstaadensis* Poelln. nat. size.

***Haworthia fasciata* forma *vanstaadensis*.**

Poelln. in Repert. Sp. Nov. XLIII (1938) 97; in Cact. Journ. Gt. Brit. VI (1938) 75, fig.

Plant 7-8 cm. in diam., proliferous from the base and forming clusters.

Leaves 4-5 cm. long, about 10-15 mm. broad towards the base, light green, ovate-lanceolate, acute; face of leaves smooth; the back rounded and tubercled with usually solitary, white to whitish-green tubercles arranged in lengthwise lines and occasionally in more or less indistinct transverse lines. The number of tubercles varies from leaf to leaf and often the tubercles may only be present on the keel and towards the margins.

Locality: Cape Province: Van Staadens Pass, Humansdorp Road, near Port Elizabeth.

This form of *Haw. fasciata* has leaves somewhat more spreading and thus forms flatter rosettes than forma *sparsa* and is not quite as attractive.

***Haworthia Reinwardtii* var. *bellula* G. G.**

Smith in Journ. So. Afr. Bot. XI (1945) 70, fig. 2 & Pl. XII.

Plant with leafy stems about 5 cm. tall and 20 mm. in diam., proliferous from the base and forming clusters.

Leaves erect, incurving, 15 mm. long, 7 mm. broad towards the base, about 3 mm. thick, ovate-lanceolate, acute; face of leaves somewhat concave, with 3 more or less distinct raised, lengthwise, concolorous lines, smooth, light green; back rounded and keeled, with white, oblong, scarcely to 1 mm. in diam. tubercles in 8-10 transverse rows about 1.5 mm. apart at the middle of the leaf, and also in about 10 indistinct lengthwise rows.

Locality: Cape Province: Albany Div., about 4½ miles from Grahamstown on the Cradock road.

The name *bellula* is the diminutive form of *bella*, which means charming, pretty, etc.

The illustration of this *Haworthia* shows a plant kindly sent to me by Miss G. Britten of the Albany Museum some years ago. It is a very small variety of *Haw. Reinwardtii* as can readily be noted; this particular plant shows some variation from the above description as some of the leaves are 20 mm. long and somewhat broader than 7 mm. and the rows of tubercles are a little farther apart at the middle of the leaf. Noticing this plant recently, towards the end of summer in So. California, the leafy stems are 20 mm. in diam., and the plant has assumed a dark brownish-green color, the tips of the leaves quite brown.

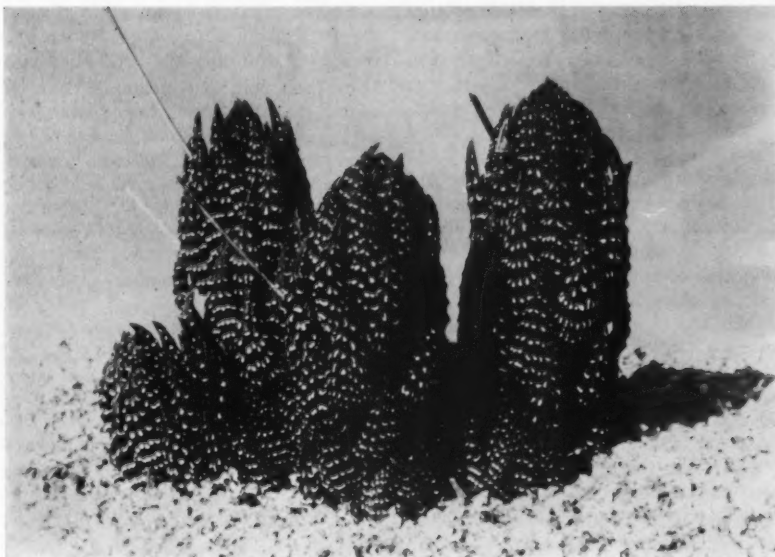


FIG. 111. *Haworthia Reinwardtii* var. *bellula* G. G. Smith, nat. size.

## CHROMOSOME NUMBERS AND POLYPLOIDY IN CERTAIN CACTACEAE

By SIGERU KATAGIRI

Edited by E. B. Kurtz, Jr., Department of Botany and Range Ecology, University of Arizona

Although the morphological relationships of the external features of cacti have been studied in rather great detail, very little attention has been given to the study of their cytological relationships. The following papers, which deal largely with the chromosome numbers of the Cereaceae, comprise the major contributions in this field. Sugiura (1931) listed three cactus species as having 24 chromosomes in the 2n (diploid) cell, but in 1933 Johansen reported that the 2n cell of cacti has 22 chromosomes. The first extensive chromosome count survey in the Cactaceae was made by Stockwell (1935), and Beard (1937) extended the survey to 45 species. Their results confirmed Johansen's report. The counts of 14 species by Takagi (1938) may be discarded because many of them seem to be in error.

The present paper extends the survey of chromosome numbers in the Cactaceae to over 60 species and varieties, including those of the Pereskieae, Opuntieae, and Cereaceae. The study was made at the Agricultural Department, Tokyo University. The writer wishes to thank Profs. T. Niwa and Y. Noguchi for their guidance and

also Mrs. K. Yasui and Mr. Kanazawa for their assistance.

All plant material was obtained from the writer's garden at Fujisawa, Kanagawa, Japan.<sup>1</sup> Chromosome counts were made from root tips and dividing pollen mother cells. Fixation was with Navashin's fluid, and the material was run up through paraffin and sectioned at 18 to 20 microns. Most of the root tips were stained with Newton's gentian violet, but a few were stained with Heidenhain's iron alum hematoxylin. Pollen mother cells were prepared by Belling's smear method.

<sup>1</sup>*Editor's note:* There has been much criticism of some cytological studies on the basis that because the worker did not make herbarium specimens of the plant material from which he made chromosome counts, it is impossible to check his taxonomic identification of the plant material. Because of the extreme variability of cactus material and the wide difference of opinion among taxonomists of cacti, it is recommended that in the future all cytological work in the Cactaceae be documented with herbarium sheets of the material, or, if that is not possible, counts should be made from numbered plants in a permanent botanical garden.

It is of interest to note that pollen mother cells were observed to divide at about noon, which agrees with Beard (1937). Cell division in root tips mainly occurred from 7-8 a.m. and 4-6 p.m. Few divisions were observed at noon, however, which is the time that Beard stated division is very rapid.

The chromosomes of most cacti are small, and those of the high polyploids are even smaller. For comparison of size, the accompanying figure shows the largest chromosome of an *Aloe* and the chromosomes of an *Astrophytum*. The chromosome size of *Aloe* is more or less typical of higher plants. The size of the chromosomes in the Cactaceae varies somewhat with each subfamily: Pereskiaeae, medium length; Opuntieae, short; Cereanae, long; Cereae (excluding Cereanae), medium to long.

The following table presents the chromosome counts obtained in this study. Although no definite conclusions can be made as yet, a few observations may be appropriate at this time.

1. The basic haploid number ( $n$ ) in the Cactaceae appears to be eleven.

2. The Pereskiaeae is composed of diploids,  $n=11$ .

3. The Opuntieae has many polyploids; that is, of the species studied 5 are diploid, 1 is triploid, 4 are tetraploid, 3 are hexaploid, 3 are octoploid, and 1 each is decaploid and dodecaploid.

4. The Cereanae has only a few polyploids; that is, of the species examined 10 are diploid and 3 are tetraploid.

5. The Cereae (excluding Cereanae) is mainly diploid since 34 species were found to be diploid and only one is tetraploid.

6. Tetraploids and pentaploids have been reported in the papers cited, but tri-, octodeca-, and dodecaploids have not previously been reported in the Cactaceae. It is notable that the triploid is the first example of an odd polyploid in the Cactaceae, and that deca- and dodecaploids are not commonly found in other families.

A much more extensive survey of chromosome numbers and polyploidy in the Cactaceae is necessary before such data can be used to trace the evolution of this family as has been done in other taxonomic groups, but it appears that such research would be most fruitful.



FIG. 112

ABOVE: Largest chromosome of *Aloe arborescens* Mill. var. *natalensis* Berg. BELOW: The 22 chromosomes of *Astrophytum myriostigma* Lem. var. *nudum* (Meyer) Megata.

TABLE. CHROMOSOME NUMBERS IN CERTAIN CACTACEAE.

	Chromosome number of $2n$ cell
I. Pereskiaeae	
<i>Pereskia pereskia</i> (L.) Karsten.....	22
<i>P. sacharosa</i> Gris.....	22
II. Opuntieae	
<i>Opuntia imbricata</i> (Haw.) D.C.....	22
<i>O. salmiana</i> Parm. in Pfeiff.....	44 (allopolyploid)
<i>O. subulata</i> (Muehl.) Engelm. ....	66
<i>O. cylindrica</i> (Lamarck) D.C.....	110
<i>O. glomerata</i> Haw. ....	88
<i>O. glomerata</i> Haw. var. <i>calva</i> Weber.....	88
<i>O. microdasys</i> (Lehm.) Pfeiff. ....	22
<i>O. rufida</i> (?) Engelm.....	22
<i>O. opuntia</i> (L.) Karsten ....	44
<i>O. tenuispina</i> Engelm. ....	66 (allopolyploid)
<i>O. tomentosa</i> Salm-Dyck ....	44
<i>O. leucotricha</i> D.C. ....	44 (allopolyploid)
<i>O. orbiculata</i> Salm-Dyck ....	22
<i>O. pilifera</i> Weber ....	22
<i>O. lanceolata</i> Haw.....	88
<i>O. rubescens</i> Salm-Dyck in D.C. ....	132



<i>O. vulgaris</i> Miller var. (?)	33
<i>O. spp.</i>	66
III. Cereanae	
<i>Cereus validus</i> Haw.	22
<i>C. tetragonus</i> (L.) Miller	22
<i>C. peruvianus</i> (L.) Miller <i>monstrosus</i> D.C.	22
<i>Monvillea spagazzinii</i> Weber	22
<i>Cephalocereus chrysacanthus</i> (Weber) B. & R.	44 (allopolyploid)
<i>Ceph. royerii</i> (L.) B. & R.	44 (allopolyploid)
<i>Pachycereus marginatus</i> (D.C.) B. & R.	22
<i>Lemaireocereus pruinosus</i> (?) Otto	22
<i>Trichocereus spachianus</i> (Lem.) Ricco.	44 (allopolyploid)
<i>Tri. chiloensis</i> Colla	22
<i>Borzacactus aurivillus</i> Schum.	22
<i>Myrtillocactus geometrizans</i> (Martius) Console	22
<i>Wilcoxia schmollii</i> (Weingart) Knuth	22
IV. Cereae excluding Cereanae	
<i>Echinocereus blanckii</i> (Poselger) Palmer	22
<i>Ech. pentalophus</i> (D.C.) Ruml.	22
<i>Echinopsis multiplex</i> (Pfeiff.) Zucc.	22
<i>Echinopsis eyriesii</i> (Turpin) Zucc.	22
<i>Echinopsis tubiflora</i> (Pfeiff.) Zucc.	22
<i>Hamatocactus setispinus</i> Engelm.	22
<i>H. hamatacanthus</i> (Muhl.) Borg var. (?)	22
<i>Echinofossulocactus crispatus</i> (D.C.) Law.	22
<i>Ferocactus stainesii</i> Hook.	22
<i>F. wislizenii</i> Engelm.	22
<i>F. covillei</i> B. & R.	22
<i>F. echidne</i> D.C.	22
<i>E. latispinus</i> Haw.	22
<i>Gymnocalycium gibbosum</i> (Haw.) Pfeiff.	22
<i>G. anisitsii</i> Schum.	22 (n=11)
<i>G. platense</i> Speg.	22
<i>Echinocactus grusonii</i> Hildm.	22
<i>Astrophytum myriostigma</i> Lem.	22
<i>A. myriostigma</i> Lem. var. <i>nudum</i> (Meyer) Megata	22
<i>A. myriostigma</i> Lem. var. <i>tulense</i> Hort.	22
<i>A. capricorne</i> Dietrich	22
<i>A. ornatum</i> (D.C.) Weber	22
<i>Notocactus mammulosus</i> (Lem.) Berg.	44 (autopolyploid)
<i>Dolichothela sphaerica</i> Dietrich	22
<i>Mammillaria magnimamma</i> Haw. var. <i>recurva</i> Schelle	22
<i>M. magnimamma</i> Haw. var. <i>neumanniana</i> Schelle	22
<i>M. spinosissima</i> Lem. var. <i>castaneoides</i> Lem.	22
<i>M. spinosissima</i> Lem. var. <i>auricoma</i> Gurke	22
<i>M. camptotricha</i> Dams.	22
<i>M. fragilis</i> Salm-Dyck	22 (n=11)
<i>M. bocasana</i> Poselger	22 (n=11)
<i>M. bahiana</i> Werd. & Bckbg.	22 (n=11)
<i>M. spp.</i>	22
<i>M. spp.</i>	22
<i>M. spp.</i>	22

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FIG. 113. *Bursera microphylla* in the barren In-Ko-Pah Gorge. From a kodachrome by George Glade.

## EXTENDED RANGE OF BURSERA MICROPHYLLA

By GEORGE GLADE

Early on the morning of June 28 of this year I arrived with my family at In-Ko-Pah Gorge in search of flowering plants of *Nolina Bigelovii* (Torr.) S. Watts. I wanted a series of 35 mm. Kodachrome slides of flowering plants. I had chosen the last week of June, knowing that in the previous year, on July 4th, pictures had been taken of the plants in full fruit. Upon arriving we soon discovered that due to an early spring all flowering plants had already ripened their fruit and dispersed their seeds.

After having driven a good portion of the night in order to reach the gorge shortly after sunrise, we felt we had several hours before the temperature went over 100° in which to learn what cacti were growing in the gorge.

In-Ko-Pah Gorge is reached by Hwy. 80 about 7 miles east of Jacumba or about 12 miles west of Plaster City. The Gorge is about 7 miles long and at its most southern point is only a couple of miles from the Mexican Border. At the eastern approach the familiar *Dalea spinosa* A. Gray, the smoke tree, was noticed in flower.

Also growing in the same area were numerous plants of *Chilopsis linearis* (Cav.) Sweet. var. *arcuata* Fosberg or Western Desert Willow and here and there a plant of *Acacia Greggii* A. Gray or Cat Claw. The last two species were also in full flower.

There are very few places where a car can stop and be off the highway at each spot one wishes to inspect or photograph a plant, but enough are available that with a little hiking the 7-mile gorge can be covered.

During some of these stops the following cacti were identified: *Ferocactus acanthodes* (Lem.), *Echinocereus Engelmannii* (Parry), *Opuntia Bigelovii* (Eng.), *Opuntia echinocarpa*? and *Mammillaria dioica* (K. Brandegee) and one Washington Palm.

During one of these stops we saw what looked to be *Asclepias subulata* Decn., Desert Milkweed, but it had fewer and longer stems which were arched instead of rigid. I was curious because it seemed too far west for that Asclepiad. A short hike proved it to be *Asclepias albicans*

S. Wats. While I was taking a close-up photo of the flowers, my wife, Mary, had wandered a few yards away and suddenly cried out, "I've found it, I've found it." I thought to myself without looking up, "I guess we'll get the *Nolina* picture after all." After completing the picture, I walked to her and found her pointing excitedly to what looked to me like a dormant desert shrub about 50 feet up the side of a bluff. Still thinking she meant a *Nolina Bigelovii* in flower somewhere up there which I couldn't see, she informed me I was looking at my first live Elephant Tree.

Not having a telephoto lense, I knew somehow I had to get up there. On the third attempt I got started but it was slow and meant each hand and foot hold had to be tested as the entire slope was decomposing granite. I finally reached the tree and after taking several pictures of the entire tree from various angles and a close-up of fruit and leaves I was ready to come down. That was the worst part. I couldn't back down. I had to sit down and inch my way down. It took nearly two hours to reach the tree, take the pictures and get back down. By that time the sun was well up and the gorge was reflecting heat from all angles. The cup of coffee Mary had ready for me at the bottom of the bluff was about the most appreciated coffee I believe I have ever had. To any one interested enough to look for this Elephant Tree, I recommend a telephoto lens.

*Bursera microphylla* A. Gray or Elephant Tree as it is commonly called is considered a very rare tree in California.

In the *University of Arizona Bulletin*, Vol. XV, No. 2, page 217, there are two very good photographs by Mr. Robert A. Darrow of a single tree in a desert wash. In this same publication Dr. Lyman Benson states on page 216, "rocky desert slopes mostly at 1,000 to 2,000 feet elevation. California on the west side of the Salton Sea Basin of the Colorado Desert between Fish and Carrizo Creeks."

In *Desert Wild Flowers* by Edmund C. Jaeger on page 142, Mr. Jaeger states, "A few Elephant Tree colonies are known in California from the Vallecito Mountains of the Colorado Desert."

From the Vallecito Mountains to In-Ko-Pah Gorge one must cross the Vallecito Desert, then between the Tierra Blanca and Fish Creek Mountains cross the Carrizo desert and Coyote Mountains; then proceed along the eastern side of the Jacumba Mountains to In-Ko-Pah Gorge. The whole distance as the crow flies is about 30 miles. It is hoped this will establish another location in California for the distribution of *Bursera microphylla* A. Gray.

### A tip on tip-rooting of Epiphyllums

Here is a method of getting a new plant without carving up the old one, without waiting for a cutting to dry out before planting, and without risk of losing the cutting from root rot besides a great saving in time in getting an established plant.

This method of propagation is simple when the tip hangs down. You can peg the tip with its aerial roots into the soil of the bench and it will make a new plant which can then be cut off later and potted up. It is a different matter, however, if the rooted tip is on the end of a stiff, up-standing branch that for some reason has stopped growing. In my case it was an *E. oxypetalum* two feet above the top of the pot. I sawed a two inch pot in halves but I had so much difficulty fastening it in place that I gave it up and put my thinking cap on.

It is my practice to enclose my clay pots with aluminum foil to reduce evaporation. One day, one of these covers fell off as I was examining the plant and my problem was solved. I folded some damp newspaper as wide as the depth the cup of foil was to be, wrapped it round the stem till it was the diameter I wanted and tied it securely. Cutting a piece of foil, I moulded it around my paper form pinching the lower half around the stem itself where I tied it loosely then I simply lowered the aluminum cup down the stem, banded it with a strip of Scotch tape, removed the paper, raised the cup into its correct position and tied it firmly. I filled the cup with a suitable compost working it carefully among the roots and after a few days I watered it. Finding no drainage, I punched a couple of holes in the bottom with a handy nail and it drained perfectly. In two weeks the branch sprang into new life and grew into a sturdy plant about ten inches high as it finished its growth.

Before cutting it off to plant it in a pot, I had another puzzle. How about the newly cut stem? If I dried it out before planting, I would dry out the fine hair-like roots also. Finally, I cut it off half an inch below the cup, wrapped some foil around the stub and tied it securely. Pinching the foil that extended below the stub like a skirt, I removed the now useless cup and potted my new plant. I figure that Nature will take care of the freshly cut stem in its enclosed chamber. How? Why, by transpiration. The sun will dry it out by drawing water from it which it cannot replace.

FREDERICK BRADBURY, R. I.

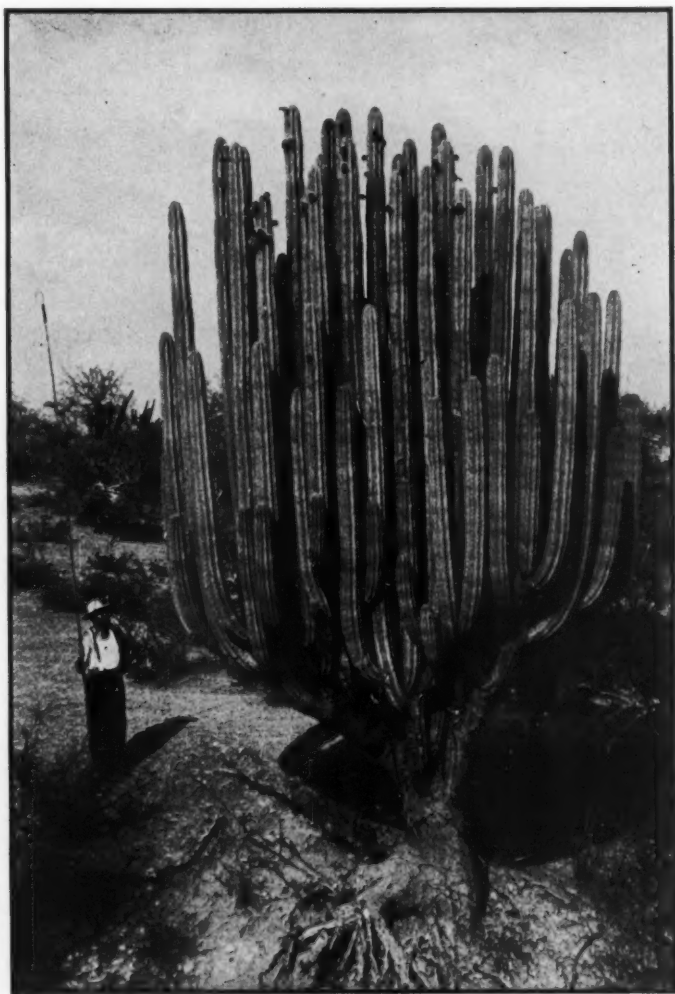


FIG. 114. *Lemaireocereus weberi* in fruit, near Acatlan, Puebla on road to Oaxaca.

## MORE ABOUT MEXICO

By HOWARD E. GATES

Photos by E. YALE DAWSON

At the port of Salina Cruz we found a small but modern harbor, well dredged out and protected by breakwaters. On a rugged point to the west of the harbor was the picturesque lighthouse. At the inner end of a breakwater, was a fine gently sloping beach which was a favorite retreat of the Tehuanans. It was always dotted with native bathers in all types of dress from Mother Nature's suits of the boys, through old

clothes to the latest models of Bikinis. Changing of clothes was accomplished in the spaces between the great stones of the breakwater. Salina Cruz is one end of the trans-isthmian railroad. It never is without gasoline as it is also a terminus of the pipe line which carries petroleum products from great refineries on the east coast. No oil fields have yet been found on or near the Mexican west coast.

While warm it was not as warm at Tehuantepec as might be expected in such a tropical latitude. The most unpleasant feature was the strong and dusty north wind which continually swept across the isthmus from the Gulf of Mexico. It was hard to realize that Salina Cruz on the west coast was farther east than the port of Vera Cruz on the Caribbean. Several Americans on the Isthmus were preparing to plant cotton. Wilbur Barker, dean of all the Gringos in that territory, was operating the Chevrolet agency.

We went on beyond Juchitan to near Zanatepec, where Dr. Dawson had found a branching large *Cereus* which he had published and described as *Lemaireocereus setispinus*. From material we collected, we later found this species to be identical with the older *Cephalocereus scoparius* which occurs near Jalapa to the northeast of Vera Cruz. More about this when we get over towards Jalapa.

Since the highway across the isthmus to the gulf coast was not completed, we were compelled to back track for more than two hundred miles over the same road we came on. However, this was well worth seeing twice. Enroute to Oaxaca, we turned off on the short side road to Mitla to observe the Pithaya de Mitla as *Lemaireocereus griseus* is called. Pithaya is the broad term covering many of the large *Cereus* fruits, which are sold in the markets for food. We found the plants, too closely resemble the large, much branching plants of *Lemaireocereus pruinosus*. It has a few more ribs than *Pruinosus* and the fruits more elongated into an ovate form instead of spherical. The fruit colors of both vary but they are usually red with red pulp. Both are well covered with spines which are easily brushed off at maturity. Many of the back yard fences were made by planting cuttings of *Pachycereus marginatus* in rows. Even though they grew well and reached as much as twenty feet in height, we were told that they never fruited in Mitla.

In a village between Mitla and Oaxaca we found the famous Tule Tree, which is said to have the largest trunk diameter of any known tree. We photographed it across an open plaza from a point more than a block away, yet it was so large the entire tree could not be shown in the picture. The tree dwarfs the large church which is beside it. This tree is closely related to our cypress group. We saw many other magnificent specimens of this species growing near streams in the bottoms of narrow valleys and canyons.

In the edge of Oaxaca we found palatial accommodations in a large modern auto court whose cottages were scattered amongst the hugh mango trees. In the morning, we had the pleasure of making a kodachrome of the bare footed Indian maid with her hair hanging in braids, as she carried the home made twig brooms to clean up the apartments.

On the way north from Oaxaca, we saw many old *Myrtillocactus* plants probably belonging to the species *schenckii*. Their small white flowers resemble those of *M. communis* and are followed by small globular red fruits ranging from a quarter to a half inch in diameter. Since *Myrtillocactus* are one of the few groups of cactus that produce more than one flower at an areole, they are probably the freest bloomers or all cacti. *Myrtillocactus* branches grow from a short trunk and keep on branching outward and upward until there are hundreds of branches on a twenty foot plant. They look like immense candelabra.

The casual traveler is apt to mistake *Escontria chiotilla* for just another *Myrtillocactus*. The size and branching habit is much the same and the campanulate flowers are not very large. The spines are longer and more correct, but the strangest feature is the fruits. These are one to two inches in diameter, red in color, bearing broad horny scales on the sides of the fruits and in a complete terminal ring which firmly clasps

the dried up leaves. These also are sold in the markets for food.

When we arrived at Huajuapán (pronounced Wah-wap-an) de León in the northern part of the state of Oaxaca, we decided we had enough of comfortable traveling, so started across country to Tehuacan via Chazumba and Zapotitlán de las Salinas. Along this route are a number of old towns dating back to colonial days, which have never been tied together with a good vehicular road. For miles we wound up at the bottom of a narrow valley which turned into a canyon with the road getting rougher all the time. Finally when it could follow the canyon no farther, the road turned abruptly up and over the rocky ridge which forms the continental divide. In places rock ledges formed an irregular stairway. In others the roadbed was an aggregation of loose boulders. Several times on this cross country trip we had to dig out the rear bumper at short dips. We were thankful that we were not travelling in a sedan or station wagon. Even though it took us nearly two days of hard work to cover the eighty miles to Tehuacan, we were satisfied as we were apparently where botanists had never been before and were able to observe the transition of species from the western to the eastern slope. We greatly extended the known range of *Cephalocereus mezcalaensis* to the eastern slope where it had never been reported.

In one portion of this territory, were many native dwarf fan palms which were used for the making of hats. Everyone, men, women, and children kept their fingers flying at the task of weaving. We even photographed two young men who were weaving as they drove their heavily laden pack burro over the rough road.

In the fair sized village of San Sebastian de la Frontera, we vainly sought accommodations for the night. No one had a place for us to stay during the passage of an approaching storm. So we traveled on for a few miles and made a roadside camp in a rich stand of *Cephalocereus mezcalaensis*, *C. tetetzo*, *Echinocactus grandis*, Agaves and Yuccas. Dr. Dawson stopped growing too soon and he had to look up to some of these *Echinocacti*. So did I in the case of a few extra large ones. Just about the time our meal was prepared, the storm overtook us. So for four hours we took refuge in the cab of the truck. Amongst his other commissions, Dr. Dawson had the task of collecting certain types of moths. Often in camp he would spread a white sheet in front of the truck and turn on the head lights to attract the moths. As we sat in the cab on this evening with the rain coming down outside and a lantern burning inside, he had better success in catching moths than at any other campsite.

The next day was one of the most important of the whole trip in regard to the observation of plants. We went through forests of aborescent Yuccas and good stands of several Agaves. Possibly the most interesting plants were giant *Beaucarneas*. These had immensely swollen narrow, pendant leaves. The Mexicans on occasion have referred to me as "Gordo" or the fat one. However, that appellation did not apply when I was photographed beside one of these with a trunk about twelve feet in diameter. In comparison I was really skinny.

*Cephalocereus tetetzo* here on the upper reaches of the eastern slope, were larger than the same species found on lower elevations in the Tehuantepec drainage area. They were readily distinguishable from the single columned *C. mezcalaensis* with fruits all up and down the stems as *Tetetzo* had a few lateral branches and the fruits were localized in an area near the top. Both species were massive and grew to a height of some thirty feet.

To be continued



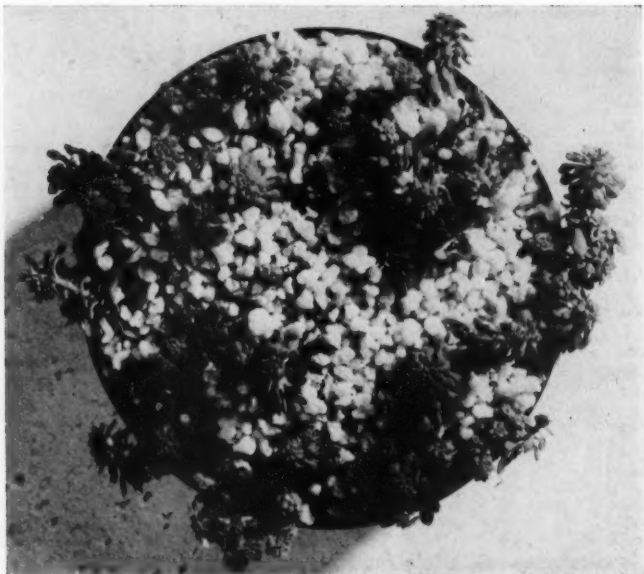


FIG. 115. *Sedum glaucophyllum* goes through the winter in the form of dense little rosettes close to the soil. In spring these elongate into shoots that bear the flowers and also form a dense mat during the summer months.

Photo by E. Morkisch.

## SEDUM GLAUCOPHYLLUM

By HOWLAND ATWOOD

Many hardy Sedums became popularly grown in New England during the 1930's when interest in rock gardening was at its height. *Sedum glaucophyllum* made an outstanding debut in amateur gardens at this time, but was then and is still known in the trade as *Sedum nevii*. I first saw *Sedum glaucophyllum* in the garden of Mrs. C. E. Cleveland of Felchville, Vermont. She and her family had constructed a very fine rock garden on a natural slope and *Sedum glaucophyllum*—an evergreen species—adapted itself very readily, soon becoming a green carpet between the rocks. It grew in full sun—eastern exposure—in light sandy loam. The plants were about two inches high, flowered freely, and withstood the winters well. They preferred a well drained location, and a snowy rather than an open winter.

A native of the south-eastern United States and still commonly grown in the East, *Sedum glaucophyllum* is not so familiar in Southern California, but is well worth consideration. It can be grown where water can be provided frequently—with good drainage. It likes early morning sun and shade the remainder of the

day. Probably it would grow best near the coast where the summers are not so hot.

*Sedum glaucophyllum* was described in April 1946 by Robert T. Clausen of Cornell University, Ithaca, New York, at which time he stated:

"*Sedum glaucophyllum* differs from *Sedum nevii* in its more glaucous foliage, denser sterile rosettes, and broader, usually more numerous flat leaves of the floral stems. *Sedum nevii* is a greener more slender plant with looser rosettes and less numerous sub-terete or narrowly oblanceolate leaves on the flowering stems." (Cactus and Succulent Journal, Vol. 18, No. 4, page 61.)

Both of these Sedums have been known to science, although under one name, for nearly a century. *Sedum nevii* from Alabama was discovered first, but soon afterwards similar plants were found in the mountains of Virginia,<sup>1</sup> and the locale of *Sedum nevii* gradually assumed the entire eastern United States, including Illinois. As these plants were collected and reported

<sup>1</sup>Salt Pond Mountain, William Marriott Canby, ca. 1864 Peak of Otter Mt. Allen Hiram Curtiss, 1867.

from various points, the early botanists, no doubt working mostly from dried specimens, did not see fit to denote the differences and in due time these variations were all classified under *Sedum nevii*. It is possible that the true *Sedum nevii* may have been introduced to the trade at one time, but more likely it has always been the *Sedum glaucophyllum* that nurserymen have handled, since its habitat is more widespread and it is perhaps more adaptable to varying conditions.

According to Robert T. Clausen, "*Sedum nevii* is a rare species known from only three localities in eastern North America. These areas of occurrence in the order of their discovery are, the valley of the Warrior River above Tuscaloosa, Alabama, 1857; the valley of the Cahoba River at Pratt's Ferry, Alabama, 1883; and the gorge of the Ocoee River in Polk County, Tennessee, 1888."

*Sedum nevii* was detected by the Reverend Reuben Denton Nevius, D.D., rector of the Christ Episcopal Church of Tuscaloosa, Alabama, from 1855 to 1866. Always a lover of nature, botany gradually became his special interest or hobby. Dr. Nevius, then a young man of about thirty years, appreciated the opportunity his new location presented—Alabama being literally the botanist's "Paradise." The following excerpt from Contributions of the United States National Herbarium, admirably sums up the general character of the Alabama flora:

"The flora of Alabama stands in the number of species and varietal forms, as well as in the diversity of their characteristic associations, unsurpassed among those of adjoining regions. This wealth and variety of Alabama's plant life is easily explained when, on the one hand, its area is considered, extending over nearly five degrees of latitude, and on the other, the diversity of its topographical features, varying from the abrupt mountain ranges, with their broad table lands, wide valleys, and rugged hills in the northern half of the State to the fertile cretaceous plain in its center; and farther south, to the pine-clad hills and rolling uplands merging into the coast plain with its open forest covered swamps, and the sands and saline marshes of the seashore. The number of distinct species and varieties known can undoubtedly be increased, since thorough botanical investigation has been attempted by but a few. The closer exploration of any of its regions is sure to reward the botanist in bringing forms to light which have never been observed in the State, if indeed not new to science."<sup>2</sup>

—Charles Mohr. Ph.D. 1901

Soon after his arrival in Alabama, Dr. Nevius

became acquainted with Professor Michael Tuomey of the University of Alabama and also Alabama's first State Geologist. Undoubtedly Professor Tuomey impressed the young priest with the botanical wonders the Tuscaloosa area afforded.

In his letter of May 29, 1858, to Professor Asa Gray, of Harvard University, Cambridge, Massachusetts, Dr. Nevius writes:

"Two years ago I began with Professor Tuomey to make a register of the Flora of this neighborhood, but before we had taken our first ramble together he was lost to me and the scientific world by death. Since then I have pursued the study alone with many regrets for his loss, both as to friend and teacher. In these studies I have collected three or four hundred plants and now have a large number upon my shelf of *Innominar*."

If Dr. Nevius had not been such a diligent student of botany, and had not desired to know the names of all the material he encountered, the history of *Sedum nevii* would doubtless be quite different. The discovery of an unusual shrub—destined to be known as *Neviusia alabamensis*—prompted Nevius to write to Asa Gray, an outstanding botanical authority of the time.

Tuscaloosa May 11, 1858

Prof. Gray

Dear Sir:

I take the liberty of sending you a plant that I have been unable to determine. I cannot think it undetermined as it is not rare—though not common. I found the specimen which I send, last year, before I procured your valuable manual and have not been able to procure a specimen for analysis since. Although I cannot think it unknown to you I will take the liberty to affix a description then made. I send also a *Sedum* which is undetermined in your manual unless it may be called *Sedum pulchellum* from which it differs in color and in that it has *very rarely* thin spikes. It is from the same locality as the other. I should not think it worth troubling you with were I not sending the other. I have the satisfaction of believing it will reach you quite fresh as now after three weeks it is yet blooming though in press. Please do me the favor to give me the names of these two plants and enclose and direct as by the accompanying envelope.

Very Respectfully

Your obedient Servant

R. D. Nevius

The following excerpts of Dr. Nevius' letters pertain to *Sedum nevii* and, it seems, constitute the bulk of original descriptions of the Nevius Stonecrop.

"Regarding the *Sedum*. I am satisfied it is not *Sedum pulchellum*, as I found a *Sedum* in the Cumberland Mountains on my way to Huntsville which answered to *Sedum pulchellum*, except that the leaves are closely sessile and amplexicant. *Sedum sparsiflorum* I cannot compare it with as I have not Torrey and Gray's Flora of North America."

—R. D. Nevius to Asa Gray, May 29, 1858

"The *Sedum* has cast its seed and has withered. It

<sup>2</sup>Plant Life of Alabama, Vol. 6, pages 37-38, Contrib. U. S. Nat'l. Herbarium.

has scarcely any roots and as its name signifies, it barely sits upon the rocks.<sup>5</sup> I have been almost too late for the seed. I send you, however, some chaff with a few seeds, from which I have no doubt you can secure living specimens next year. I send also a few sprigs of the least dry plants and a few living roots."

—R. D. Nevius to Asa Gray, June 21, 1858

"As to the *Sedum* I really hope it is new that I may then by your favor enter by enrollment, in a more modest way than you at first designed, the honorable and gentle guild of Botanists."

—R. D. Nevius to Asa Gray, July 12, 1858

The first published description of *Sedum nevii* was communicated to the American Academy of Arts and Sciences, August 12, 1858, by Asa Gray, M.D., as follows:

"A specimen of the plant which forms the subject of this communication (*Neviusia alabamensis*) was sent to me, in May last, by the discoverer, the Rev. R. D. Nevius of Tuscaloosa, Alabama. A specimen of a *Sedum*, also apparently undescribed was communicated at the same time. The two plants were detected by Mr. Nevius in the spring of 1857, along cliffs in the vicinity of Tuscaloosa.

"The *Sedum*—a small, white flowered species, with short and nearly terete leaves, which may be named *Sedum nevii*—cannot be adequately characterized until better specimens shall be obtained."

It may be of interest at this point to insert two paragraphs that describe not only the shrub that was found with *Sedum nevii* but also the physical habitat of these rare plants.

"The Rev. R. D. Nevius collected plants in the vicinity of Tuscaloosa. He is the discoverer of the singular shrub *Neviusia*, in 1857, named in his honor by Gray, which is confined to a single locality on the banks of the Alabama (Warrior) River."<sup>6</sup>

"On the cliffs of sandstone which form the eastern brink of the Black Warrior River, a short distance above the city of Tuscaloosa, a monotypical shrub, *Neviusia alabamensis*, finds its only home. The numerous slender wand-like stems bear abundant white apetalous flowers in the earliest days of spring when the leaves begin to appear. This unique shrub belongs to the Asiatic element of Alabama's flora and is strictly confined to the above locality."<sup>6</sup>

Descriptions attributed to *Sedum nevii*, which may be found in the following bibliographical listing and perhaps in other reference books, evidently embrace information which pertains to both *Sedum nevii* and *Sedum glaucophyllum*:

Gray's Manual, Fifth edition, 1867, page 172

The Gardener's Chronicle (of England) Sept. 21, 1878, Vol. 10, Part II, page 376

<sup>5</sup>The name *Sedum* is derived from a Latin word, *sedere*, to sit, referring to the manner of growth.

<sup>6</sup>Memoirs of the American Academy of Arts and Sciences, New Series, Vol. 6, Part II, page 373.

<sup>7</sup>Contributions from United States National Herbarium, Vol 6, pages 17-18.

<sup>8</sup>Ibid. Vol. 6, page 61.

Native Flowers and Ferns, Thomas Meehan, Vol. I., among *Sedums* of pps. 85 to 88, and Plate 22

Gray's Manual, Sixth edition, 1889, page 177

Britton and Brown, First edition, 1897, Vol. II, page 168 and Plate

Britton and Brown, Second edition, Vol. II, page 210

A Guide to the Wild Flowers, Alice Lounsberry, 1899, Third edition, page 172, Plate XC, page 171

The Genus *Sedum* as Found in Cultivation, by R. Lloyd Praeger, B. A. in Journal Royal Horticultural Society, London, Vol. XLVI, pages 162-163, 1921

Manual of the Southeastern Flora, John Kunkel Small, 1933, pages 586-587

The Genus *Sedum*, by Dr. Harald Froderstrom, 1936, Part IV, page 110

Royal Horticultural Society Dictionary of Gardening, 1951, Vol. 4, page 1925

Quotations from recent letters of Lad Cutak, Horticulturist, and George T. Moore, Director of Missouri Botanical Garden, show that their *Sedum nevii* of recent years is definitely *Sedum glaucophyllum*.

"We used to grow this species in the early 1930's but the plant was destroyed by a fire which spread over to our experimental hardy plot. Our *Sedum nevii* (*glaucophyllum*) originated from Virginia from the late Mrs. Walker, editor of *Garden Gossip*. It is evergreen, the tiny rosettes hugging the ground and later in the spring elongating into shoots that flower. We also grew this species from seed received from the Experimental Farm in Ottawa, Canada."

*Sedum nevii* is mentioned in Phenological Notes at Missouri Botanical Garden for 1892 and 1893 by J. C. Whitten, Vol. 5, page 131 of Miss. Bot. Garden Reports.

"*Sedum nevii* First Leaf, May 5th; First Flower, June 12th; First Ripe Fruit, June 17; Last Flower, July 2nd; Last Fruit July 13th."

It would seem from the information presented above, that the Missouri Botanical Gardens had the true *Sedum nevii*, as it is perhaps more inclined to be deciduous than *Sedum glaucophyllum*, but which species they had in cultivation at that time cannot be definitely determined.

*Sedum glaucophyllum* may be seen at the Huntington Botanical Gardens in the new succulent planting.

\* \* \*

#### WANTED

I would like to obtain a small plant of *Opuntia floccosa*. Do you know where I could buy one. I cannot find it at any of the dealers whom I have contacted.

EDITH BESTARD

Eureka Springs, Arkansas

#### FROM DENMARK

Count F. M. Knuth, well-known collector and co-author of *Kaktus ABC*, has donated half of his collection (800 plants) to the city of Zurich, Switzerland. This will give Mr. Krainz an added incentive for the continuation of his scientific studies.



FIG. 116. Some cacti have adapted themselves to arid mountains where they survive frost and snow.

## SNOW CACTI

By WM. MASTRANGEL, *Rocking Horse Cactus Gardens*

*(A brief summary of cactus which are hardy in the colder portions of the United States)*

First of all, let me congratulate those good people who made such a success of the recent Cactus Convention in California. My wife and I never enjoyed ourselves so thoroughly as we did at this convention and we will always have pleasant memories of such wonderful cactophiles as Mr. Howard Gates, Harry Johnson, Mr. Beahm, John (very uncereus) Rodgers, Lad (Pass the cactus nectar) Cutak, and all the many, many other convention members whom we met at this fine gathering. Congratulations too, are in order to Mr. Benson's fine pictures, Sister Marie Fidelis and her interesting talk on

chromosomes, and to Mr. Howard Gates who did such a wonderful job in leading the parade. One of the most interesting things we saw was the wonderful cactus collection at the Huntington's Gardens—a sight we will never forget.

And now to go on about Snow Cacti. During the past years, we have been flooded with requests for a list of cacti that would do well in outdoor plantings in cold climates where there is snow and cold weather. Many cacti which are suitable for such a situation are found growing in the higher mountain regions of western United States. We find many *Opuntias* growing

in areas having lots of snow, some of which are *Opuntia opuntia* (natural habitat in the eastern United States, from Massachusetts to Virginia), *Opuntia rhodantha* (natural habitat, Nebraska, Colorado, Utah), *Opuntia polyacantha* (natural habitat, from western Canada, south to Arizona and Texas), *Opuntia pbaeacantha* (natural habitat, northern Mexico to Arizona and Texas). The last named *Opuntia*, turns to a beautiful purple color in winter and is therefore commonly called the purple prickly pear. Then there are the hardy *Echinocerei* (hedgehogs). The following are very winter hardy: *Echinocereus coccineus* (the scarlet hedgehog), *Echinocereus Bonkerae* (claret-cup hedgehog), *Echinocereus viridiflorus* (the green-flowered hedgehog), *Echinocereus gonacanthus* (the evergreen hedgehog), and others.

Various species of *Coryphantha* are also winter hardy and one of the best is *Coryphantha vivipara-Arizonica* (the Arizona snowball). This plant grows in mountain localities which have quite a bit of snowfall. Flowers of this plant are very large, and have a beautiful deep rose color. It seems to me that the *Coryphantha* group has been overlooked by many collectors. Surely the very pretty *Coryphantha* plants, which number dozens of varieties, are among our most interesting groups of cacti. They are generally small plants, closely related to *Mammillarias*, but as a rule, have larger and more beautiful flowers than our familiar pin-cushions.

From South America come various species of cacti which are native to the high snow-capped Andes mountains. Some of the winter hardy species of that locality are: *Opuntia floccosa* (the woolly sheep cactus), *Trichocereus fascicularis*, *Trichocereus huancayensis*, some of the *Echinopsis* (Easter lily cactus), and certain *Lobivia*.

Back in our United States again, *Pediocactus Simpsonii* (a small flattened globular cactus with very pretty flowers), found from Washington to Kansas and south to New Mexico, is a very fine winter hardy cactus. Some collectors have told me that they have planted this particular cactus in their outside garden as far north as Minnesota, where it is covered with snow for many weeks during winter, but comes out with flying colors in the late spring with its very beautiful flowers. There are many other cacti which are winter hardy, too numerous to mention in this article. The collector, however, can experiment with certain plants which he knows come from high mountain areas in its native habitat and test them out in his locale. There's no reason why a northern collector cannot have at least ten to twenty species of cacti doing very well in his outside garden. In sub zero temperatures, it would be wise to cover even the hardest plants with a few burlap sacks.

It is probably needless to mention, that cacti which are going to spend the winter outside, should not be watered after September. A dry cactus very seldom freezes. Collectors who are



FIG. 117. Several *Opuntias* do not mind the snow of the western plateaus.



interested in winter hardy plants, should write to their favorite commercial cactus gardens, the owners of which will be glad to advise as to which particular types of winter hardy cacti they may have in stock. Also, some of the northern collectors, may contact other cactophiles living in the same cold regions and trade winter hardy plants—thereby in time, acquiring a fine garden of snow cactus. One more point to remember, cacti which grow in cold climates, have in their natural habitat, a fine drainage system. It would be wise to remember that in planting these cacti in your outside gardens—to be sure to dig a fairly deep hole and fill same with a mixture of coarse gravel and leafmold. Gravel will give drainage; leafmold will keep the roots warm during the winter.

Next issue: The Golden Barrel Cactus.

#### CATALOGUES OF BLANC & CO.

Paul Hutchison reports a copy of "Catalogue and Hints on Cacti" first edition, 1886. 64 pages and brown cover, 55 woodcuts, catalogue of cacti runs from page 9 through 58. Another copy of this first edition is reported at Bailey Hortorium by Reid Moran.

Evidently the Second Edition, published in 1888, dropped the word "Catalogue" from the front cover and became "Hints on Cacti."

Reid Moran reports another copy of "Hints on Cacti" with no date. 100 pages including covers is almost the same as the catalogue of the same name but clearly dated 1891 on the cover. Mr. Moran's copy has a woodcut on page 64 whereas there is no woodcut on the 1891 edition.

Rev. Robert Walker reports a copy containing 112 pages and cover. This, no doubt, is the 1891 edition, but his cover is not dated and the inside back cover is blank; our copy has all four pages containing woodcuts on the cover.

Our conclusions lead to the fact that it is difficult to find two of Blanc's catalogues alike. There seems to be the greatest discrepancy in the covers; for instance, the 1891 edition has a woodcut on page 11 that is copyrighted in 1893 (or 1898). In either case the edition is dated before the copyright!

NOTE: Your editor would like to purchase a copy of the First Edition.

#### FOND DU LAC, WISCONSIN

After reading Evelyn Barnett's "Beginner's Luck in Louisiana" I decided to tell about my experience in growing cacti. To begin with I am an amateur of the lowest rank. I thought I had a green thumb, as I had many odds and ends of plants that grew well and blossomed as they were supposed to.

About 10 years ago I bought several cacti, just because they were different. The Dime Store didn't carry them as a rule but somehow I was lucky in finding them, I never found out their names but that didn't matter to me then. I had

them for several years before they rotted (of course too much water and I repotted them twice a year). About 5 years ago I again bought a dozen plants and began experimenting with some doubts. And what did I do first? Yes, I repotted them all to bigger pots, some in pure gravel sand, others in the soil from the garden. I guess 4 or 5 lived a year or so.

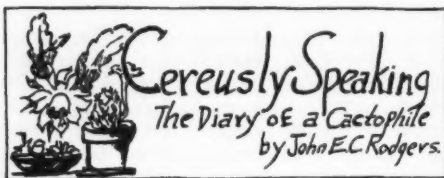
Then I decided to buy some more plants and get "slips" from friends who had cactus plants. When I had about 25 plants growing nicely on the window-sill I was thrilled to death. Of course I didn't leave well enough alone! I had to put them out-of-doors in the sun—after all, they are desert plants. We had a very rainy summer and some of the plants died, others got new shoots which gave me the idea that I knew all about cacti.

I found an address of a cactus garden so I sent for some plants. In the meantime it was getting cold at night so I fixed shelves on the windows facing south and brought in all my cacti—sure, the sun shone with fury during the day and I was happy! Now I had plants from Michigan, Wisconsin, Illinois, Texas, California and Arizona. I wanted to know the real names of the plants, so through the cactus garden in Texas I sent for the booklet by Haselton, "Cacti and Succulents and How to Grow Them." Wow, did I have a lot to learn! (and still do). After losing a lot of plants I bought the book "Cacti for the Amateur" and was thrilled to find out the names to some of my plants.

I've learned several costly lessons: 1. The sun shining through two thicknesses of glass can burn the cacti in a hurry. 2. The plants must have water weekly. 3. Pure sand will not grow cacti (gravel sand or beach sand is NOT like desert sand). 4. Plants grow the best here that have been started in a greenhouse. 5. I use rain water or river-water in the summer and melt snow for them in the winter. 6. I write the name, date, where purchased, on each pot. 7. Now I buy cactus soil (which is expensive) from the greenhouse and I do not repot until the plant is nearly covering the top of the pot or has become top heavy.

My Fish-hook Cactus had six tiny white blossoms on it last winter and was I proud? I ask you. My collection is nearly 150 plants with only a few duplicates. I'm still hoping for a tiny greenhouse for summer use. The winters here go to 30 and 40 degrees below zero and it would be very expensive to have to furnish heat for them. Anyway I like to have them in the house so I can watch them for every new shoot or maybe a flower. My favorites are the ones with long hairs or spines such as *Cephalocereus senilis* or *Opuntia glomerata*.

MRS. JOS. RENTMEISTER



Spring and summer always bring on problems for me: to repot or not to repot; to separate offsets or not; to water plants inside greenhouse or set out and let nature do it; to use richer soils and less drainage materials or use glazed pots and water less; to make raised beds and sink pots rim deep in sand or take plants out of pots and set plants in "well-drained" garden soil; to cause plants to grow fast and have fewer plants or to keep them smaller (so I can have what I got plus a few more). Yes, cactophiles, I sympathize with you and our mutual problems of any and all seasons.

If the report of most plants' mineral needs are true, the minerals are only protective while carbon dioxide, water and sunlight are the real needs. We know that cacti can survive in a small amount of soil, if not too lean, for several years but survival and good health are not always the same. A healthy cactus is not always a handsome plant (fast grown plants are not always symmetrical either). Time is on our side if we are true cactophiles. Cacti are gem-like at any time. "The longer the infancy of any living thing the longer the span of life" is known to be true; then it is true of our succulents. When my reading and study lapses for any length of time, my plants suffer whether it is personal attention, soil, watering, or any other ponderable, my neglect shows up (at least I feel it does).

The offset and "cutting" methods of increase are always two of my joys as well as two of my sorrows. I like to let my plants multiply into clusters (Mammillarias, Echinocereii, etc.) but I do not like to pay out money for new plants if I can trade offsets and cuttings for them—so I have a few clusters. Spring is the time to separate "children from parents" as they form roots quickly at that time but do not despair—any time is fine if a cutting box of coarse sand and peat-moss (for some I use coarse sand) is used. Epiphyllum stems can be cut into six-inch pieces, let callus (dry to prevent rot) and root in your favorite rooting compound. Most people are intrigued by the newer "Orchid Cacti" and will trade anything (almost) that can be separated or made into cuttings.

I'm taking weekly inventory of my collection for the next three to five months. So far, coolness has been a 100% boon to my Mammillarias. I have 25 named species and some 20-25 I'm not sure as to their status but the blooming and budding to date has been about 60%. The Epiphyllums (Orchid Cacti and true species), *Rhipsalis*, *Pseudorhipsalis*, *Chiapasia*, *Disocactus*, *Heliocereus*, and *Nopalxochia* have budded and bloomed about 75%. *Crassula*, *Othonna*, *Aeonium*, *Eleocharis*, *Haworthia*, about 65%. *Rebutia*, *Lobelia*, *Gymnocallium*, *Parodia*, about 50%, etc.

*Gymnocallium Bruchii* never did much until I "degrafted" it, rerooted and potted it in a glazed pot with good drainage and gave water freely. Now it is twice its former size, has six blooms and now has six "pups." I separate any "pups" more than 3/4 in. in diameter and treat the same as the big one since they bloom freely when quite small.

Some plants, no matter how warm the weather, stay in my greenhouse. Rarity has been a deciding factor for greenhouse care but there are others such as *Opuntia basilaris* and *O. Santa Rita* that would be lost from even moderate rainfall. Others are small,

and unless in community plantings, the size of pots makes outdoor sun and shade problems. Size and vining types are also deterrents. Our rainfall of about 12 to 14 inches from late April to middle of October keeps me worried about the drainage for any and all South West cacti, so they stay in until "dry season" arrives about July 15 to September 1st.

May was the wettest May since 1928. Rained every day with only three full days of sunshine. June was dryer with 18 full days of sunshine. July and August were hot and dry with rains (infrequent) of cloudburst proportions. The round and columnar plants out in the open had absorbed so much water in May that they were almost ribless, but now look slightly shrunken. The Epiphytes have grown so much that I'll have to tie them up instead of letting them "hang natural."

I set my Echinopses out in medium to full sun in their pots. Houghton in the "Cactus Book" lists all that I have outside as being sun or partial sun-loving. They have been wet, moist, dry, hot, cold, cool and what have you but they have not bloomed as well as I had hoped. Leached soils (lack of minerals) no doubt. What I need is a "long distance" weather forecast, then I'd be sure whether I could set out the touch-me-nots; as it is, I am only pampering some and insulting others. Results seem acceptable to most growers I visited.

*Chamaecereus silvestrii* which was left cool, dry and in strong light, paid off "from neglect" with 5 exquisite blooms in late May. I have at least proved the theory that this plant must be kept dormant from late fall to early spring. I began to question successful growers and flowerers about 10 years ago as to what results they got. Most of them told me the plant bloomed rarely but budded almost every year. The consensus of opinion was it preferred to be kept on the dry side during the winter and in good light. Coolness was not one of their culture observations. E. J. Fish, Strongsville, Ohio, had a 6-inch pot and several smaller ones in bloom each spring for three or four years. Then success became failure and now he is starting all over again. Most Peanut Cactus growers use them as tails on pottery dogs, cats, etc., and never seemed to care if they bloomed or were long from etiolation when they are normally short (not over 4 inches at the most) stubby plants. California grown cuttings were available in flats at greenhouses and potted at 5 and 10's but only a small percentage were budded and very few ever bloomed. Five years ago I kept mine in a cool dry place with excellent light—it bloomed. The three succeeding seasons I watered it twice a week, kept it warm and growing and in the same position as to light. It budded but didn't bloom. Since I am an experimenter, I tried the same conditions with the dryness and coolness treatment for 1952 and 1953—it bloomed. The stems should shrivel and even turn reddish-purple with this treatment. For me it means blooms—what will it do for you?

This year has been one of surprises for me. Many shy bloomers have responded to last year's care. If buds are set as far as a year before the blooms open and my plants are blooming, should I credit my fall and winter coolness program or last year's studied neglect? I'm sure it is my coolness treatment (Note: the Aloes, larger Haworthias and Gasterias bloomed late this year in June and July—see May-June Journal, page 90).

I've kept records for 20 years as of Jan. 1, 1954. I've listed rainy and cool springs as well as warm and sunny springs, warm winters and cool winters, but dryness and coolness were part of my '52-'53 program. So I'm sure that it has taken me all these years to observe basic rules of cactus and succulent culture—winter coolness gives results.



# SPINE CHATS

LADISLAV CUTAK



Last July I enjoyed three glorious weeks of California hospitality, when as part of a business-vacation trip I attended the cactus convention, delivered six lectures before as many horticultural groups, and visited botanical institutions, private collections and commercial plant establishments. The luxurious TWA Skyliner, which I boarded in St. Louis, had me in Los Angeles in exactly six hours—a distance of some 1609 air miles. Man, that's traveling! Think of the poor pioneers and the length of time it took them to accomplish the Westward trek. We ran into two storms on the way but in the matter of minutes outrode them. At the airport I was met by Dr. Russell J. Seibert, director of the Los Angeles State and County Arboretum, his charming wife, Denny, and a couple of other important fellows.

During the first two days of my sojourn in California I was guest of the Seiberts and this gave me the opportunity to make a survey of the Arboretum grounds, a portion of the old estate of "Lucky" Baldwin, the squire of Santa Anita who, in the late half of the last century, had amassed a fortune from hotel and livery stable investments, as well as mining. At the present time, the prettiest portion of the Arboretum is the tropical lake with its surrounding jungle planting which has been utilized on several occasions by movie studios. It is this part, along with its historic buildings of Queen Anne's Cottage, Hugo Reid's Old Adobe and the old Baldwin Stables, our members were privileged to inspect on a guided tour. The Arboretum, not as yet open to the general public, is carrying on extensive propagation of plants which will be used in planting various areas. Suffice to say, the Arboretum is destined to become one of the chief attractions for tourists in southern California as well as information center for plant lovers and gardeners.

The cactus convention under the able chairmanship of Howard Gates was quartered in the private dining room of Carpenter's Cafe in Arcadia, just a hop, skip and jump from the famous Santa Anita Racetrack—inoperative at this time of the year. Most of the members were housed in nearby motels, such as The Westerner where the staff had its headquarters. The spacious dining room proved an ideal location for our meetings, luncheons and dinners. The management of the Cafe is to be commended for its splendid cooperation given our Society. There was an address of welcome by the President of the Arcadia Chamber of Commerce, who later distributed souvenir 'gold coins' commemorating the Days of Lucky Baldwin, founder of the town which was celebrating its golden jubilee. Might add here, too, for history's sake, that our convention was the first convention ever to be held in Arcadia.

I imagine all the members enjoyed the visits to the various commercial nurseries where they saw our plants being raised by the thousands. Some of them probably won't ever see so many again for a long time. Many wished they could stay longer and a few made second visits. Too bad the distances were so great. It was a field day for the camera enthusiasts.

The fun session was staged at Knott's Berry Farm in Buena Park, about an hour's drive from Arcadia. Here is where the group photograph was taken and a new cactus king and queen elected. Knott's Berry Farm is a very celebrated place. It is a 200-acre farm

with seven dining halls and a ghost town that covers considerable acreage. The owners have bought a ghost-town collection of old Western buildings from dead mining towns and reassembled them on the grounds of the Farm. After a tasty dinner the cactus gang assembled in the Horse Show Arena behind Ghost Town, where they witnessed the crowning of the new king and queen, the initiation ceremonies, and the hat and loud shirt contest. Fred and Jaye Mayall of Burbank, California, were officially crowned by ex-Queen Pat Moorten of Palm Springs and their reign will extend over the cactus kingdom until the next convention. The Mayalls are a very charming couple who got interested in cacti and succulents only in recent years, but already have acquired enough knowledge to make them veterans in the game. Queen Jaye is also editor of *The Cactus Chronicle*, official organ of the Los Angeles Cactus and Succulent Society.

There were so many highlights offered to the convention members to make all our heads spin, but I'm sure the visit to Madame Ganna Walska's "Lotusland" will always be a lasting memory. This lovely lady, without a doubt, owns the finest and largest private cactus garden in the Americas; and all the specimens are grown outdoors all year round in the ideal Santa Barbara climate. The gang literally ran amuck at the sight of so many healthy specimens and photographed to their heart's content. Fortunately I was invited by Madame to be her guest, so for two days I photographed, both in color and black and white, all the beautiful aspects of her garden and definitely could have stayed many more days! Because her garden is so massively attractive I have a special story in which I can give you a fuller account.

My three-week sojourn in California has enriched my knowledge considerably. I have gathered much information about southern California gardens, the plants grown in them, and about the people who manage them so successfully. I'll be telling you all about them in my *Spine Chats* for a long time. You'll get acquainted with Mr. and Mrs. Charles Redler, at whose home I made my headquarters; with Dr. Mildred Mathias of UCLA; the Mergets and Diehls of Vista; John Akers; Dr. John Poindexter and many others.

It was indeed a rich experience for me to crowd so many attractions on my schedule and I'm willing to share my enthusiasm with all readers of the CACTUS JOURNAL.

## BOOK ON BROMELIADS

"Bromeliads—a Cultural Handbook" by Mulford B. Foster. Published by The Bromeliad Society, Inc. 64 pgs. 6 x 9, 25 illus. paper bound \$1.50, cloth \$3.00.

Bromeliads are fast gaining in popularity and this new book will introduce many more to these fascinating plants. A small part of the book is devoted to a key and brief description of the genera of the Bromeliad Family. More than 40 pages are devoted to culture and propagation. Special articles on the various methods of growing Bromeliads are by Muriel Waterman, Henry Heuscher, Julian Nally, Ladislav Cutak, William Hertrich, and Victoria Padilla. Definitions of Some Specific Names, Glossary of Botanical Terms, and a List of Growers and Dealers close an excellently planned book.

## FROM MEXICO

My new Cacti Price List of 1953 has just been finished. It contains a good number of new discoveries. If you really are interested in rare Cacti, just write for my list to:

FRITZ SCHWARZ

Apartado 347 San Luis Potosi, SLP Mexico

## HAWORTHIA COLLECTIONS

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## SPECIMEN CLUSTERS

To show our appreciation to all cactophiles, and the fine turn out at the recent convention, we are offering the following plants at cost during Sept., Oct. and Nov., 1953, only. The price of these large plants includes freight to any place in the United States. These are prize winning clusters.

*Coryphantha recurvata* (3 to 4 heads)  
large and beautiful.....\$6.50 each  
*Echinocereus bonkeriae* (3 or more heads).....3.50 each  
*Echinocereus coccineus* (5 or more heads).....5.00 each  
*Echinocereus Engelmannii*  
(large, 3 or more heads).....4.50 each  
*Echinopsis* hybrids—beautiful full clusters 5"  
to 8" across (15 or more heads).....2.50 each  
*Trichocereus Schickendantzii*  
(5 or more heads).....1.75 each  
*Mammillaria compressa*  
(Imported, 4 or more heads).....2.50 each  
*Mammillaria tolimensis*  
(Imported, 4 or more heads).....2.50 each  
*Mammillaria Parkinsonii*  
(4 to 8 heads) all white.....1.75 each  
*Mammillaria microcarpa*—fine plants  
(3 or more heads).....1.25 each  
One each of above large clusters at special price of \$32.50 postpaid. This offer will not be repeated—first come, first served.

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## NOTICE TO AFFILIATES

There are now two sets of 100—35-mm colored slides each available to affiliates. The first set is composed of California Cacti and the second of Baja, South America and Mexican plants. Any affiliate interested in borrowing either set may do so by sending me a \$5.00 deposit.

An additional set of slides has just been assembled: Orchid Cacti and Miscellaneous Succulents.

MARY GLADE, Corresponding Sec'y.  
7600 Verdugo Crestline Dr.  
Tujunga, California.

## FROM ENGLAND

Norfolk must be one of the coldest spots in England. In spite of this, my cacti have delighted me with many lovely blooms. The first one this year (after *Zygocactus truncatus* in January) was *Parodia chrysacanthion* with a gem of a flower about  $\frac{3}{4}$  in. across. Since then there have been more and more opening. The latest one is *Astrophytum myriostigma* which has a number of buds pushing up as if to furnish a succession of blooms. This year has been so much dull weather over here, and lots of damp, dank, rainy days. Doubtless this accounts for the slow growth amongst some types of plants. All of my *Opuntias* are very slow this year. Some have not yet shown a new shoot, though most of the globular Mams, *Noto-*cacti, etc., have grown very well.

JOHN STRATHAM  
June, 1953

## FROM ILLINOIS

I have such an interesting bunch of cacti purchased from Johnson Cactus Gardens. I still have 5 that I first got from him 14 years ago. My Fish-hook and Powder Puff are beautiful. I have 65 to 70 different kinds. I ordered seeds of Living Rock from Jonsons and now have 22 plants and you can just see new leaves peeping up in the center; I've just re-set them in 1-inch pots. I have a Star Fish Cactus budded to bloom. I've never moved them from my south window but the sun is pretty hot for them. I water when dry. I have a Heart Vine two yards long and it blooms all the time; should I break it off so as to get more new plants?

MABEL ONEAL

NOTE: Direct sun in a south window will burn the plants. A bamboo screen can be regulated to give filtered sunlight during the heat of the day. New plants of *Ceropegia woodii* (Heart Vine) may be obtained by breaking off the section of the vine at a joint where a tiny tuber is forming; these easily take root in porous soil.



## CACTUS GROWER'S GUIDE

Every amateur should have this book written by Mrs. Higgins. Cultivation and propagation of cacti and other succulents. Greatly simplified information step by step for beginners. Cloth bound \$1.50 postpaid.

*Texas Cacti*—out of print. Used copies.....\$5.00  
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Unbound \$4.95, postage 25c

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\$7.50, postage 25c

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*Succulents for the Amateur*—Brown

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*Aloes of South Africa*—Reynolds. Contains 650 pages, 572 illustrations and 75 color plates. The finest book published in 1952. English edition mailed direct from South Africa. \$11.85

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